United States Department of Agriculture,

OFFICE OF EXPERIMENT STATIONS.

A. C. TRUE, Director.

LIST OF STATION PUBLICATIONS RECEIVED BY THE OFFICE OF EXPERIMENT STATIONS DURING JANUARY, 1911.

NOTE.—These publications are not distributed by the Department of Agriculture, but can usually be obtained, as far as the supply will permit, by applying to the stations issuing them.

CALIFORNIA STATION, Berkeley, E. J. Wickson, Director.

The Late Blight of Celery. By S. S. Rogers. (Bulletin 208, pp. 83–115, pl. 1, figs. 18.)

Directions for growing and marketing celery are followed by a brief bibliography, history, and description of *Septoria petroselini* var. *apii*. The results of four years' field experiments with Bordeaux mixture and along other lines are stated. Suggestions are given for the control of other fungus diseases and of injurious insect pests.

The Cream Supply. By H. A. Hopper. (Bulletin 209, pp. 115–137, figs. 13.)

A discussion of methods of obtaining cream of good quality by the milking machine and ordinary milking is followed by a statement of the results of experiments with different methods of handling, cooling, insulating, and separating.

Experiments with Plants and Soils in Laboratory, Garden, and Field. By F. E. Edwards. (Circular 58, pp. 35.)

This circular presents 50 exercises intended as supplementary to work in general science, physical geography, or botany.

ILLINOIS STATION, Urbana, E. Davenport, Director.

Clean Milk: Essential Requirements from Production to Consumption. By C. H. Yates and R. E. Brand. (Circular 147, pp. 36, figs. 7.)

Discussions of the essentials for the production and distribution of clean milk are followed by suggested model laws, licenses, permits, and score cards of milk, milk depots, equipment, and methods.

KANSAS STATION, Manhattan, E. H. Webster, Director.

Burning Chinch Bugs. By T. J. Headlee. (Circular 16, pp. 7, figs. 6.)

Directions are given for finding chinch bugs and for burning grass in such a way as to destroy them.

MASSACHUSETTS STATION, Amherst, W. P. Brooks, Director.

Meteorological Observations. By J. E. Ostrander and C. M. Damon. (Meteorological Bulletin 264, pp. 4.)

A summary of the observations for December is followed by the daily observations during the month and the summary for 1910.

MICHIGAN STATION, East Lansing, R. S. Shaw, Director.

The Usefulness of Curves in the Interpretation of Microbial and Biochemical Processes. By O. Rahn. (Technical Bulletin 5, pp. 29, figs. 18.)

This is a presentation of methods of using curves in the interpretation of microbial processes, and a discussion of the value of mathematical methods in such work.

Mississippi Station, Agricultural College, J. W. Fox, Director.

The Inspection and Analyses of Commercial Fertilizers. (Bulletin 142, pp. 3–71.)

The results of analyses of 665 samples drawn by inspectors are stated in tabular form and briefly discussed.

Inspection and Analyses of Cottonseed Meal. (Bulletin 143, pp. 37.)

The analyses of 407 samples of cottonseed meal drawn since April, 1910, are tabulated with a statement of the name of the producer and of the firm from which each sample was collected. The values of various grades of meal are discussed with especial reference to nitrogen content.

Missouri Fruit Station, Mountain Grove, P. Evans, Director.

Winterkilling of Twigs, Cankers, and Sun Scald of Peach Trees. By F. M. Rolfs. (Bulletin 17, pp. 9–101, pls. 13.)

This bulletin describes and discusses in a technical way the twigs, limbs, and trunks of peach trees that have suffered from winterkilling of the twigs or cankers, or sun scald of the limbs and trunks and the fungus hyphæ usually associated with these conditions. Studies are given of the occurrence of the fungus on different hosts, its growth on different media and of spraying, dehorning the trees, and the removal of infected tissue as remedial measures. A bibliography is given.

New Hampshire Station, Durham, J. C. Kendall, Director.

Results of Seed Tests, 1910. By F. W. Taylor. (Bulletin 148, pp. 187–209, figs. 2.)

Tables give the results of purity and germination tests of seeds examined during the first six months of 1910. The text of the New Hampshire law regulating the sale of agricultural seeds is followed by a discussion of its object, a statement of the germination standards for seeds of different crops, and directions for submitting samples for test.

Results of the Feed Inspection for 1910. By B. E. Curry and T. O. Smith. (Bulletin 149, pp. 10.)

Tables give the results of feed inspection, including the names of the brands, names and locations of the manufacturers, and the analyses, guaranteed and found. The average composition of each of 28 common feeding stuffs is stated.

New Jersey Stations, New Brunswick, W. H. S. Demarest, Acting Director.

Analyses and Valuation of Commercial Fertilizers. Analyses of Fertilizer Supplies, Home Mixtures, and Special Compounds. By C. S. Cathcart et al. (Bulletin 233, pp. 3–43.)

Tables state the actual and guaranteed analyses of numerous fertilizer samples and give the names of the manufacturer, brand, and of the town where the sample was taken.

New York Cornell Station, Ithaca, L. H. Bailey, Director.

The Control of Insect Pests and Plant Diseases. By M. V. Slingerland et al. (Bulletin 283, pp. 465–498, figs. 32.)

The writers describe certain insects and plant diseases and the injuries done by them. Directions are given for the preparation and use of insecticides and fungicides.

Labor-saving Poultry Appliances. By J. E. Rice and C. A. Rogers. (Bulletin 284, pp. 5–36, figs. 51.)

This bulletin describes inexpensive labor-saving and sanitary feeding devices for watering, catching, and carrying, and for miscellaneous purposes, and suggests appliances for pedigree egg collection and egg-collecting and shipping packages.

The Cause of Apoplexy in Winter-fed Lambs. By H. H. Wing. (Bulletin 285, pp. 37–46, figs. 2.)

This is a preliminary report of experiments undertaken to determine the cause of apoplexy in lambs and the relative cost of gain in weight with narrow and with wide rations.

The Snow-white Linden Moth. By G. W. Herrick. (Bulletin 286, pp. 49–64, figs. 5.)

This bulletin gives the history, life history, and geographical distribution of *Ennomos subsignarius*. A discussion of its natural enemies and methods of control is followed by a bibliography of 54 titles.

NEW YORK STATE STATION, Geneva, W. H. Jordan, Director.

Medullary Spots: A Contribution to the Life History of Some Cambium Miners. By J. G. Grossenbacher. (Technical Bulletin 15, pp. 49–65, pls. 5.)

A brief history of medullary spots and their cause, with references to work cited, is followed by descriptions of insect miners of currants and of species of Prunus and Cratægus. Data on the life histories of *Opostega nonstrigella* and *O. 4-strigella* are given.

The Acidity of Gluten Feeds. By W. H. Jordan. (Technical Bulletin 16, pp. 67–79.)

The literature dealing with the acidity of gluten feeds is reviewed with references to the works quoted. The results of a chemical study of "steep water" as the cause of acidity in gluten feeds are stated.

NORTH DAKOTA STATION, Agricultural College, J. H. Worst, Director.

Special Bulletin Food Department. (Special Food Bulletin 28, pp. 243–258.)

This bulletin discusses fraudulent medicines, the need of higher education for pharmacists, Velvet Chaff wheat, crackers, wafers, ice cream factories, water and food analyses, paints, and the sanitary inspection law.

Special Bulletin Food Department. (Special Food Bulletin 29, pp. 259–286.)

Snuff using, the registration of cider and soft drinks, use of coal-tar dyes on carpets, milling qualities of various wheats, and the sale of diseased meat and milk in Fargo are discussed. A table states the results of numerous water analyses.

OHIO STATION, Wooster, C. E. Thorne, Director.

Spraying Machinery. By W. H. Goodwin. (Bulletin 216, pp. 491–526, figs. 24.)

This bulletin is designed to assist the prospective sprayer in the selection of a machine which accomplishes the desired work.

Floats. By E. W. Gaither. (Circular 105, pp. 3.)

The author discusses finely ground rock phosphate as a supplementary carrier of phosphorus.

PENNSYLVANIA STATION, State College, T. F. Hunt, Director.

The Respiration Calorimeter at the Institute of Animal Nutrition of the Pennsylvania State College. By H. P. Armsby. (Bulletin 104, pp. 3–16.)

This bulletin describes the respiration apparatus and calorimeter and the method of making experiments. Tables present data secured in alcohol check tests and comparisons of results with the meter pump and aspirator in experiments on animals. References are given to the literature of the subject.

Influence of Type and of Age upon the Utilization of Feed by Cattle. By H. P. Armsby and J. A. Fries. (Bulletin 105, pp. 3–22, figs. 6.)

The authors report the results of calorimeter tests upon the utilization of timothy hay, wheat bran, and mixed grain by a pure-bred and by a scrub steer at different ages. References are given to the literature of the subject.

RHODE ISLAND STATION, Kingston, H. J. Wheeler, Director.

Fowl Cholera and Methods of Combating It. By P. B. Hadley. (Bulletin 144, pp. 309–337, dgms. 3.)

The author discusses the character and symptoms of the disease, the anatomical changes, causative organism, and mode of transmission, and suggests methods of

treatment and prevention. The results of experiments with the subcutaneous inoculation of carbolic acid are stated.

Tennessee Station, Knoxville, H. A. Morgan, Director.

Stand and Soil Fertility as Factors in the Testing of Varieties of Corn. By C. A. Mooers. (Bulletin 89, pp. 37–53, dgms. 4.)

This bulletin reports the results of tests of corn varieties with different rates of planting.

Utah Station, Logan, E. D. Ball, Director.

The Nitrogen and Humus Problem in Dry-land Farming. By R. Stewart. (Bulletin 109, pp. 3–16.)

The author reviews the literature of the subject, with references to the authorities quoted. Tables and descriptive text state the results of soil analyses and of studies with reference to the length of cultivation and the method of cropping.

The Alfalfa Leaf-weevil. By E. G. Titus. (Bulletin 110, pp. 19–72, pls. 17, fig. 1.)

This bulletin states the food plants and the degree of loss due to the alfalfa leaf-weevil (*Phytonomus murinus*). Discussions of the area infested, means of distribution, life history, habits, enemies, and remedial measures are followed by a bibliography.

Vermont Station, Burlington, J. L. Hills, Director.

Commercial Feeding Stuffs. Principles and Practice of Stock Feeding. By J. L. Hills, C. H. Jones, and P. A. Benedict. (Bulletin 152, pp. 515–614.)

This is in part a revision of Bulletin 81. It states the results of feed inspection and discusses animal nutrition, feeding standards, and economic considerations, and gives a glossary of terms used in the bulletin. Tables present data relating to feeding standards and analyses of feeds.

Plant Diseases; Potato Spraying. By B. F. Lutman. (Bulletin 153, pp. 619–629.)

This bulletin discusses the plant diseases of 1909 and states the results of spraying experiments to determine what constituent of Bordeaux mixture causes the increase in yield of potatoes.

Commercial Fertilizers. Soil Classifications and Adaptations. By J. L. Hills, C. H. Jones, and P. A. Benedict. (Bulletin 154, pp. 635–743.)

A report of the results of fertilizer inspection is followed by discussions of plant food selling prices and valuations, a comparison of analyses of certain brands during five-year periods, and soil classifications. A glossary explains the terms used.

Washington Station, Pullman, R. W. Thatcher, Director.

Twentieth Annual Report, 1910. (Annual Report 1910, pp. 18.)

Reports on the Adams fund projects and the work of the different departments of the station are followed by a financial statement.

Wyoming Station, Laramie, H. G. Knight, Director.

Twentieth Annual Report, 1910. (Annual Report 1910, pp. 77, fig. 1.)

The director's report is followed by outlines of Adams fund projects of wool, alkali, vegetable poisons, and soil moisture investigations, and the financial report of the treasurer. Selection, variety tests, and other investigations with barley, oats, wheat, peas, field crops, grasses, and alfalfa are dealt with and the reports of the officers of the station presented. The meteorological summary for 1909 is followed by statements of temperature means and the precipitation by months during the past 19 years.

○

United States Department of Agriculture,

OFFICE OF EXPERIMENT STATIONS.

A. C. TRUE, Director.

LIST OF STATION PUBLICATIONS RECEIVED BY THE OFFICE OF EXPERIMENT STATIONS DURING FEBRUARY, 1911.

NOTE.—These publications are not distributed by the Department of Agriculture, but can usually be obtained, as far as the supply will permit, by applying to the stations issuing them.

ALABAMA COLLEGE STATION, Auburn, J. F. Duggar, Director.

The Boll Weevil Advance in Alabama. Fighting the Boll Weevil. Destroying Boll Weevils by Clean Farming. By W. E. Hinds. (Circulars 5–7, pp 9–23, fig. 1.)

This is a reprint in a single pamphlet of Circulars 5, 6, and 7, which outlines the history of the boll weevil in the United States and its life history, states its feeding and other habits, and discusses rotation, cultural, and other methods for controlling or eradicating the pest.

CALIFORNIA STATION, Berkeley, E. J. Wickson, Director.

Imperial Valley Settlers' Crop Manual. By J. E. Coit and W. E. Packard. (Bulletin 210, pp. 139–253, figs. 55.)

Discussions of the weather conditions, soils, irrigation problems, insect pests and diseases in the Imperial Valley are followed by suggestions for the growing of fruit, field, and garden crops. Weeds and ornamental plants are also dealt with.

Tree Growing in the Public Schools. By E. B. Babcock and H. A. Greene. (Circular 59, pp. 19, figs. 6.)

Suggestions as to the kind of tree to plant are followed by directions for growing and transplanting seedlings, growing certain trees from cuttings, and caring for young trees. Reading lists of books and of free literature on tree growing and forestry are given.

CONNECTICUT STATE STATION, New Haven, E. H. Jenkins, Director.

Food Products and Drugs, 1910. By J. P. Street. (Biennial Report 1909–10, pt. 6, pp. 455–582.)

This report deals with canned peas, flavoring extracts, ice-cream cones, mincemeat, catsup, olive oil, alcohol, and other foods and drugs. Data obtained in inspection are presented and discussed.

Tests of Summer Sprays on Apples and Peaches in 1910. By G. P. Clinton and W. E. Britton. (Biennial Report 1909–10, pt. 7, pp. 583–618, pls. 8.)

Fungus diseases and insect enemies of apples and peaches and the injuries done by them are described, and the results of spraying investigations briefly stated.

HAWAII FEDERAL STATION, Honolulu, E. V. Wilcox, Special Agent in Charge.

A Study of the Composition of the Rice Plant. By W. P. Kelley and Alice R. Thompson. (Bulletin 21, pp. 7–51, charts 2.)

This bulletin gives studies of the composition of spring and fall rice during three periods of its growth as affected by fertilizers, of carbohydrates in the rice plant during three periods, of the absorption of nutrients by the rice plant, and of the loss of elements during the ripening stage. References to the literature of the subject are given.

Insects Attacking the Sweet Potato in Hawaii. By D. T. Fullaway. (Bulletin 22, pp. 9–31, figs. 10.)

Studies are reported on the life histories of cutworms; the tortricid leaf roller; the sweet potato sphinx, leaf miner, stem borer, leaf roller, and weevils; and minor pests. Remedies are suggested and beneficial insects briefly discussed.

IDAHO STATION, Moscow, W. L. Carlyle, Director.

Chemical and Mechanical Analyses of Characteristic Idaho Soils. By J. S. Jones. (Bulletin 68, pp. 3–33.)

A discussion of the composition of soils is followed by analyses and discussions of soils from different counties of the State.

The Farmer's Vegetable Garden. By W. H. Wicks. (Bulletin 69, pp. 3–49, figs. 10, dgms. 2.)

This bulletin states the results of the experimental maintenance of a half-acre garden to secure data on methods of culture, yield, cost of production, and the advisability of maintaining such a garden on the farms of Idaho.

ILLINOIS STATION, Urbana, E. Davenport, Director.

On the Measurement of Correlation with Special Reference to Some Characters of Indian Corn. By H. L. Rietz and L. H. Smith. (Bulletin 148, pp. 291–316, figs. 3.)

This bulletin presents in tables the correlations observed between length and weight, circumference and weight, circumference and rows of kernels, length and circumference, width and rows of kernels, and length and rows of kernels in corn grown for various other experimental purposes. The formulas and methods used in making the computations are fully explained.

On the Measurement of Correlation with Special Reference to Some Characters of Indian Corn. By H. L. Rietz and L. H. Smith. (Bulletin 148, Abstract, pp. 8.)

This is an abstract of the above. It presents the same tables of conclusions, but the methods and formulas by which they are obtained are less fully presented.

INDIANA STATION, Lafayette, A. Goss, Director.

The Selection, Preservation, and Preparation of Seed Corn. By A. T. Wiancko and G. I. Christie. (Circular 2, 4. ed., rev., pp. 16, figs. 9.)

Directions are given for the selection, storage, and testing of seed corn and for testing the planter. The results of germination, planter tests, and counts of the stand and barren stalks in fields are stated, as well as the relative yields of various types of seed ears of the same variety.

Twenty-third Annual Report, 1910. (Annual Report 1910, pp. 70.)

The report of the director is followed by summaries of the work of the different departments, a list of the station's publications for the year, and a statement for receipts and expenditures.

Kansas Station, Manhattan, E. H. Webster, Director.

Registered Feeding Stuffs. (Feeding Stuffs Bulletin 11, pp. 4.)

This bulletin gives the names of all feeds registered up to June 1 for the year ended June 30, 1910. The names and addresses of manufacturers are stated.

Protecting Trees from Rabbits. By J. C. Cunningham. (Circular 17, pp. 4, figs. 4.)

Directions are given for trapping, wrapping, poisoning, and the use of repellents.

Maine Station, Orono. C. D. Woods, Director.

Official Inspections. (Official Inspection 27. pp. 97–124.)

A discussion of carbonated beverages is followed by tables stating the results of examinations of bottled samples purchased and the analyses of ice creams collected in the summer of 1910.

Official Inspections. (Official Inspection 28, pp. 125–140.)

A discussion of seed analysis is followed by tables stating the results of purity tests of samples taken in 1910, and the frequency of occurrence in these samples of each of 81 kinds of weed seed.

Massachusetts Station, Amherst, W. P. Brooks, Director.

Inspection of Commercial Fertilizers for the Season of 1910. By H. D. Haskins, L. S. Walker, and J. F. Merrill. (Bulletin 135, pp. 3–75.)

A summary of the fertilizer law and inspection for 1910 is followed by discussions of prices and values of fertilizer ingredients and tables stating the guaranteed and actual analyses of all fertilizers sold in Massachusetts.

Meteorological Observations. By J. E. Ostrander and C. M. Damon. (Meteorological Bulletin 265, pp. 4.)

Monthly and daily summaries are followed by remarks on the meteorological data collected during January, 1911.

The Chemical Analysis of Soils. By W. P. Brooks. (Circular 29, pp. 3.)

This revision of Circular No. 11 discusses the value of the chemical analysis of a soil and states conditions under which the station will make such analyses.

Missouri College Station, Columbia, F. B. Mumford, Director.

Forest Conditions of the Ozark Region of Missouri. By S. J. Record. (Bulletin 89, pp. 199–280, figs. 6, map 1.)

An account of investigations on the physiography, land ownership, taxation, industries, and transportation facilities of the Ozark region is followed by forest descriptions of each of its counties.

Factors Influencing the Yield of Oats. By F. H. Demaree. (Circular 46, pp. 89–98.)

Discussions of the present status of the oat crop and its place in rotation are followed by directions for producing it and a statement of the results of treatment for smut, and variety and rate of seeding tests.

NEBRASKA STATION, Lincoln, E. A. Burnett, Director.

Growing Feeder Steers in Western Nebraska. By W. P. Snyder. (Bulletin 117, pp. 5–54, figs. 6.)

The experiments reported were conducted to determine the relative value of alfalfa, prairie hay, and cane hay, separately and in various mixtures, for growing cattle in western Nebraska.

NEW HAMPSHIRE STATION, Durham, J. C. Kendall, Director.

Twenty-first and Twenty-second Reports, 1909–10. (Bulletin 151, pp. 48, fig. 1.)

The director's financial report is followed by the reports of the different departments of the station. The work dealt with includes variety tests of corn, small grains, fruits, and vegetables, and work on spraying, plant diseases, plant and animal breeding, and insects.

NEW YORK STATE STATION, Geneva, W. H. Jordan, Director.

The Modern Milk Pail. By H. A. Harding, J. K. Wilson, and G. A. Smith. (Bulletin 326, pp. 249–281, pls. 4.)

This bulletin reports the bacterial counts of milk drawn into each of a number of different types of pails. The results and use of pails of each type are discussed. References are given to the literature of the subject.

Potato Fertilizers: Method of Application and Form of Nitrogen. By W. H. Jordan and F. A. Sirrine. (Bulletin 327, pp. 283–304, dgm. 1.)

This is a report of the results of four years' tests in three Long Island localities to determine the best form and amounts of nitrogenous fertilizers for potatoes. Broadcast application was compared with drilling the fertilizer in the row.

Notes on New York Plant Diseases, I. By F. C. Stewart. (Bulletin 328, pp. 305–404, pls. 18.)

Brief notes are given on various plant diseases and malformations observed in New York during the past 10 years with 274 references to authorities and herbarium specimens cited and a bibliography of 165 titles.

Chemical Investigation of Best Conditions for Making the Lime-sulphur Wash. By L. L. Van Slyke, A. W. Bosworth, and C. C. Hedges. (Bulletin 329, pp. 405–449, pl. 1.)

The general object of this study was to "enable one to utilize the lime and sulphur most completely and with largest formation of the compound containing most sulphur, calcium pentasulphid." Especial emphasis is laid on the way composition and the quality of the wash are affected by the method of making the mixture.

Experiments with Homemade Concentrated Lime-sulphur Mixtures. By P. J. Parrott and W. J. Schoene. (Bulletin 330, pp. 451–484, fig. 1.)

A report of three years' station experiments is followed by accounts of 11 volunteer experiments in spraying for the blister mite and 7 for San José scale.

NORTH DAKOTA STATION, Agricultural College, J. H. Worst, Director.

Special Bulletin Food Department. (Special Food Bulletin 27, pp. 227–242.)

This bulletin states the results of the inspection of enzym flour, rotten tomatoes and catsup, illuminating oils, benzoate of soda, soothing sirups, slaughterhouses, and tomatoes. The analyses of numerous foods and wines are given.

Third Annual Report of the Dickinson Subexperiment Station for the Year 1910. (Annual Report Dickinson Substation, 1910, pp. 85, figs. 14, charts 10.)

This report deals with the buildings of the substation and experimental work with alfalfa, clover, small grains, potatoes, trees and shrubs, milling and baking tests, and the conservation of moisture. Meteorological observations are reported.

OHIO STATION, Wooster, C. E. Thorne, Director.

Apple Culture in Ohio. By F. H. Ballou. (Bulletin 217, pp. 527–559, figs. 17.)

Suggestions for locating, planting, and maintaining an orchard in Ohio are followed by a report of administrative work for the control of apple scab in Washington County.

The Status of the Potato Growing Industry in Ohio. Seasonal Notes on Potatoes. By H. A. Ballou and J. H. Gourley. (Bulletin 218, pp. 559–603, figs. 12.)

Discussions of methods of growing potatoes in Ohio, northern seed, and sunsprouting are followed by statements of the results of experiments with different rates of planting, the use of small potatoes for seed, treatment of seed for scab, and the use of sunsprouted seed. Directions are given for seed selection and improvement and the use of tuber-row and hill-row tests. The results of such selection and of tests of yield and disease resistance are stated.

Cooperative Forestry Work. By W. J. Green and E. Secrest. (Circular 82, rev., pp. 2–10, figs. 5.)

Directions are given for woodlot operations and artificial plantations for various purposes. A plan of cooperation between the farmer and the experiment station is outlined.

SOUTH DAKOTA STATION, Brookings, J. W. Wilson, Director.

Injurious Weeds Common in South Dakota. By C. Willis and W. L. Burlison. (Circular 1, pp. 16, figs. 6.)

The injuries done by the Russian thistle, Canada thistle, quack grass, wild buckwheat, and pigeon grass are discussed and remedies suggested.

WASHINGTON STATION, Pullman, R. W. Thatcher, Director.

The Milling Quality of Washington Wheats. By R. W. Thatcher. (Popular Bulletin 29, pp. 4.)

This reports the results of analytical and milling tests to determine the comparative value of different varieties of wheat, and of the same variety when grown in different parts of the State.

Spraying for the Codling Moth. By A. L. Melander. (Popular Bulletin 30, pp. 4, figs. 3.)

This is in part a report of material contained in Popular Bulletins Nos. 5 and 17, and in part the results of spraying experiments conducted during 1908–9. Directions are given for spraying for the codling moth.

○

United States Department of Agriculture,

OFFICE OF EXPERIMENT STATIONS.

A. C. TRUE, Director.

LIST OF STATION PUBLICATIONS RECEIVED BY THE OFFICE OF EXPERIMENT STATIONS DURING MARCH, 1911.

NOTE.—These publications are not distributed by the Department of Agriculture, but can usually be obtained, as far as the supply will permit, by applying to the stations issuing them.

ALABAMA COLLEGE STATION, Auburn, J. F. Duggar, Director.

Raising Beef Cattle in Alabama. By D. T. Gray and W. F. Ward. (Bulletin 150, pp. 3–24, figs. 5.)

This bulletin reports the results of a 3-year test by the station in cooperation with the Bureau of Animal Industry of this Department to determine the cost of raising a beef calf. The management of the herd, the average cost of summer and winter gains, the area of pasture required per animal, and the breeding records are fully discussed.

Wintering Steers in Alabama. Fattening Cattle on Pasture in Alabama. By D. T. Gray and W. F. Ward. (Bulletin 151, pp. 25–63, figs. 16.)

This is a progress report giving the results of two years' work in fattening cattle upon pasture during the summer months.

ARIZONA STATION, Tucson, R. H. Forbes, Director.

The Grazing Ranges of Arizona. By J. J. Thornber. (Bulletin 65, pp. 245–360, pls. 13, figs. 5.)

This bulletin gives results of ten years' investigations of the conditions and methods of improving of grazing ranges in Arizona conducted in cooperation with this Department. Economical plans for handling these ranges are fully discussed.

Twenty-first Annual Report, 1910. (Annual Report, 1910, pp. 361–402, figs. 3.)

This report contains a financial statement and brief accounts of the work of the various departments of the station for the year.

CALIFORNIA STATION, Berkeley, E. J. Wickson, Director.

How to Increase the Yield of Wheat in California. By G. W. Shaw. (Bulletin 211, pp. 255–314, figs. 28.)

Results of cultural and fertilizer experiments and of numerous variety tests and selections are reported and discussed. Methods for growing more and better wheat are recommended.

CONNECTICUT STATE STATION, New Haven, E. H. Jenkins, Director.

Commercial Feeding Stuffs. By E. H. Jenkins and J. P. Street. (Biennial Report, 1909–10, pt. 8, pp. 619–656.)

The results of chemical and miscroscopical examinations of samples of feeding stuffs collected and sent in from different parts of the State are reported.

Tenth Report of the State Entomologist, 1910. By W. E. Britton. (Biennial Report, 1909–10, pt. 9, pp. 657–712, pls. 8, figs. 14.)

This report discusses the main entomological features and the results of orchard, nursery, and apiary inspection and control work in Connecticut, 1910.

CONNECTICUT STORRS STATION, Storrs, L. A. Clinton, Director.

General Weather Review and Temperature Curves for the Locality of Storrs, 1909. By W. M. Esten and C. J. Mason. (Bulletin 64, pp. 165–187, charts 7.)

This bulletin gives data on rainfall and temperatures at Storrs during 1909 and 21 preceding years, and on rainfall during the growing season at 20 other places in Connecticut during 20 years, and curves of maximum and minimum temperatures during 21 years at Storrs.

Butter Making on the Farm. By J. M. Trueman. (Bulletin 65, pp. 191–210, figs. 7.)

Methods of making and handling butter on the farm are discussed in a popular way.

FLORIDA STATION, Gainesville, P. H. Rolfs, Director.

Japanese Cane for Forage. By J. M. Scott. (Bulletin 105, pp. 53–68, figs. 5.)

This bulletin discusses the cultivation, fertilizing, harvesting, and composition of Japanese cane and its use as a forage plant.

HAWAII FEDERAL STATION, Honolulu, E. V. Wilcox, Special Agent in Charge.

The Management of Pineapple Soils. By W. P. Kelley. (Press Bulletin 29, pp. 10.)

This bulletin presents the more practical phases of the pineapple soil investigations of the station in so far as these relate to the management of the red soils of Hawaii.

ILLINOIS STATION, Urbana, E. Davenport, Director.

Tuberculosis of Farm Animals. By C. F. Briscoe and W. J. MacNeal. (Bulletin 149, pp. 317–431, figs. 8.)

The bulletin discusses in a comprehensive way the history, nature, and cause of tuberculosis and means of combating it, and reports studies on its distribution through milk, butter, and feces of animals, on occurrence of tubercle bacilli in blood of infected animals, and on the tuberculin test. Full bibliographies of the subject are given.

Twenty-third Annual Report, 1910. (Annual Report, 1910, pp. 12.)

This is a brief administrative report, giving a list of station publications, lines of work during the year, and a financial statement.

Louisiana Stations, Baton Rouge, W. R. Dodson, Director.

The Bacterial Deterioration of Sugars. By W. L. Owen. (Bulletin 125, pp. 5–88, figs. 30.)

Investigations are reported on the bacterial flora of sugars, bacterial deterioration of sugars, and the influence of various factors on gum development. A bibliography of the literature on the subject is appended.

Maine Station, Orono, C. D. Woods, Director.

Maine Apple Diseases. By W. J. Morse and C. E. Lewis. (Bulletin 185, pp. 337–392, pls. 16.)

This bulletin treats of the various diseases of apple trees and fruit other than those caused by insects and gives recommendations for their control, based in a large measure upon studies and investigations made at this station. A subject index is given.

Four Insect Pests. By O. A. Johannsen. (Document 401, pp. 24, figs. 10.)

This publication discusses the typhoid fly and its allies, flea beetles and early blight of potatoes, plant lice of the apple, and cutworms in Maine, and suggests means of controlling these pests.

Maryland Station, College Park, H. J. Patterson, Director.

Spraying, Fumigating, and Dipping for the Control of San José Scale. By T. B. Symons, L. M. Peairs, and E. N. Cory. (Bulletin 148, pp. 47–81, figs. 3.)

Results of the year's spraying, fumigating, and dipping investigations are reported, and a general description is given of the San José scale, its life history, means of distribution, and control. Brief reference is made to the Osage hedge as a harbor for insect pests and to the use of public sprayers in the State.

The Terrapin Scale. By T. B. Symons and E. N. Cory. (Bulletin 149, pp. 83–92, pl. 1.)

This bulletin gives briefly the history and distribution of the terrapin scale, and reports investigations on the character and general distribution of the injuries done by the insect and the results of spraying experiments for the control of the pest. A bibliography of the subject is appended.

Pig Feeding Experiments and Two Kinds of Hoghouses. By A. L. Stabler. (Bulletin 150, pp. 93–132, figs. 11.)

Results of pig feeding experiments are reported and a description of two styles of hoghouses used with success at the station is given.

Fertilizers on Asparagus. By C. P. Close, T. H. White, and W. R. Ballard. (Bulletin 151, pp. 135–146, figs. 2.)

The results of six season's fertilizer tests on asparagus are stated in tables and briefly discussed. Brief directions for asparagus culture are given.

Massachusetts Station, Amherst, W. P. Brooks, Director.

Meteorological Observations. By J. E. Ostrander and C. M. Damon. (Meteorological Bulletin 266, pp. 4.)

Monthly and daily summaries for February, 1911, are followed by remarks on the weather for the month.

Rules Relative to Testing Dairy Cows. By P. H. Smith. (Circular 28, pp. 6.)

The general requirements relative to testing dairy cows are stated, and information is given on the yields of milk and butter fat required for advanced registry.

MICHIGAN STATION, East Lansing, R. S. Shaw, Director.

Twenty-third Annual Report, 1910. (Annual Report, 1910, pp. 137–549, figs. 289.)

This report gives a statement of receipts and expenditures of the station for the year, reports of the director and heads of the different departments, and meteorological tables, besides reprints of Bulletins 256–261. Special Bulletins 51–53, Technical Bulletins 2–4, and Circulars 6–9.

MISSISSIPPI STATION, Agricultural College, J. W. Fox, Director.

Inspection and Analyses of Commercial Feeding Stuffs on Sale in the State. (Bulletin 144, pp. 69.)

A general discussion of the functions of nutrients, the composition and digestibility of feeds, and computation of rations is followed by a brief summary of the requirement of the Mississippi feeding stuffs law and by tables giving the analyses of commercial feeding stuffs for the season 1909–10.

Inspection and Analyses of Commercial Feeding Stuffs on Sale in the State. (Bulletin 145, pp. 25.)

Analyses of feeding stuffs inspected during the season 1909–10 are reported.

Inspection and Analyses of Commercial Fertilizers on Sale in the State. (Circular 32, pp. 35.)

Analyses of fertilizer samples collected to date are reported and brands of fertilizers registered for sale in the State with guarantees for the season 1910–11 are given.

MISSOURI COLLEGE STATION, Columbia, F. B. Mumford, Director.

Selecting and Judging Corn. By C. B. Hutchison. (Circular 45, pp. 85–88, fig. 1.)

Points of the score card are explained and brief suggestions are given on selecting corn for exhibition purposes.

NEBRASKA STATION, Lincoln, E. A. Burnett, Director.

Growing Crops in Western Nebraska. By W. P. Snyder and W. W. Burr. (Bulletin 118, pp. 5–69, figs. 17.)

This bulletin states the more important results of experiments in crop production on the substation farm at North Platte since its establishment. A brief discussion of the climate and of methods of handling the soil is given.

Spraying as an Essential Part of Profitable Apple Orcharding. By R. A. Emerson, F. W. Howard, and V. V. Westgate. (Bulletin 119, pp. 3–26, figs. 8.)

Three years' spraying investigations to demonstrate the possibility of profitably controlling apple insects and diseases are reported.

NEW HAMPSHIRE STATION, Durham, J. C. Kendall, Director.

Results of the Fertilizer Inspection for 1910. By B. E. Curry and T. O. Smith. (Bulletin 150, pp. 10.)

Tables state the actual and guaranteed analyses of numerous fertilizer samples and give the names of the manufacturer and brand.

New York Cornell Station, Ithaca, L. H. Bailey, Director.

Correlation of Characters in Corn. By E. C. Ewing. (Bulletin 287, pp. 65–100, figs. 2.

Results of studies on correlation between yield of grain and various measurable characters are reported and discussed, and a general discussion of correlation in breeding is given.

Lime-sulphur as a Summer Spray. By E. Wallace. (Bulletin 289, pp. 139–162, pl. 1, figs. 7.)

Results of spraying experiments during 1909–10 are reported and discussed.

Studies of the Fungicidal Value of Lime-sulphur Preparations. By E. Wallace, F. M. Blodgett, and L. R. Hesler. (Bulletin 290, pp. 163–207, pl. 1, figs. 2.)

This bulletin reports laboratory and field experiments on the fungicidal value of lime-sulphur preparations, the chief purpose of the bulletin being to describe some experiments with laboratory methods of studying the fungicidal properties of various preparations.

The Apple Red Bugs. By C. R. Crosby and C. S. Wilson. (Bulletin 291, pp. 213–225, pls. 5, figs. 10.)

This bulletin reports observations on the life history, habits, and distribution of the apple red bugs, discusses injuries done by them, and suggests methods of controlling these insects.

The Elm Leaf-beetle. By G. W. Herrick. (Circular 8, pp. 6, figs 9.)

A discussion of the introduction and habits of the elm leaf-beetle is followed by an account of methods for its control.

Twenty-third Annual Report, 1910. (Annual Report, 1910, pp. LIV+498, pl. 1, figs. 284.)

A statement of the receipts and expenditures is followed by a report of the director and by reprints of Bulletins Nos. 270–283, with the exception of Bulletin 278.

New York State Station, Geneva, W. H. Jordan, Director.

Covered Pails Mean Cleaner Milk. By F. H. Hall. (Bulletin 326, popular edition, pp. 6.)

This is a popular edition of Bulletin 326.

Making and Using Concentrated Lime-sulphur Wash. By F. H. Hall. (Bulletins 329 and 330, popular edition, pp. 2–12.)

This is a popular edition of Bulletins Nos. 329 and 330.

Preliminary Report on Grape Insects. By F. Z. Hartzell. (Bulletin 331, pp. 489–581, pls. 15, figs. 7.)

Results of investigations on grape production in Chautauqua County, particularly as affected by the grape flea beetle, the grape-blossom midge, the rose-chafer, the grape root-worm, and the grape leaf-hopper are reported, and methods for the control of the insects are suggested.

Director's Report for 1910. By W. H. Jordan. (Bulletin 332, pp. 583–608.)

This report includes "the main administrative details, reviews of the bulletins published during the year, summary of the results most important to farm practice, and a statement of the needs of the institution."

Seed Tests Made at the Station During 1910. By G. T. French. (Bulletin 333, pp. 12.)

This bulletin states the number, results, and kinds of seed samples tested during the year 1910, the standards of purity and germination published by this Department, describes the methods of making the tests, and gives suggestions concerning seed samples. A list of publications on the subject is appended.

Are Our Farm Seeds Pure? By F. H. Hall. (Bulletin 333, popular edition, pp. 4.)

A popular edition of the above.

The Apple and Pear Membracids. By H. E. Hodgkiss. (Technical Bulletin 17, pp. 81–112, pls. 8.)

This bulletin reports results of an extended series of breeding experiments dealing with a study of the life history and habits of the apple and pear membracids (*Ceresa taurina* and *C. borealis*), and the apple and pear-tree hoppers (*C. bubalus* and *Stictocephala inermis*). Attention is called to 2 species of egg parasites (*Polynema striaticorne* and *Ottys ceresarum*), and to clean cultivation as means of combating these insects. A bibliography is appended.

Twenty-eighth Annual Report, 1909. (Annual Report, 1909, pp. 588, pls. 31, figs. 10.)

The financial statement and the director's report on the conditions and work of the station are followed by accounts of the work of the various station departments. A list of periodicals received by the station and meteorological records for 1909 are appended.

North Carolina College Station, West Raleigh, C. B. Williams, Director.

Thirty-second Annual Report, 1909. (Annual Report, 1909, pp. 151+117, figs. 124.)

This report contains a financial statement, reviews of the work of the year in the different departments of the station, various scientific papers, and reprints of Press Bulletins 16–20, excepting No. 17. An appendix contains Bulletins 200–204.

North Dakota Station, Agricultural College, J. H. Worst, Director.

Special Bulletin Food Department. (Special Food Bulletin 30, pp. 287–302.)

This bulletin contains an explanation regarding registration fees under the beverage law of North Dakota, together with a list of beverages registered, to date.

Ohio Station, Wooster, C. E. Thorne, Director.

Meteorological Summary—Press Bulletins—Index. (Bulletin 220, pp. 641–672.)

This bulletin gives the meteorological summary for 1909, reprints of Press Bulletins 304–314, and a subject index.

The Mineral Nutrients in Blue Grass. By E. B. Forbes, A. C. Whittier, and R. C. Collison. (Bulletin 222, pp. 39–53.)

Determinations of mineral constituents in blue grass from various localities are reported and discussed with reference to the food value of the grass.

A Successful Alfalfa and Truck Farm in Southeastern Ohio. By W. A. Lloyd. (Circular 107, pp. 3–19, figs. 10.)

This paper is based on a study of a farm in Hocking County, and develops the possibilities of truck and fruit growing near a good local market and of growing alfalfa on the river bottoms in some sections of the State. The farm is described together with the cropping, fertilizing, and marketing systems used and a statement of gross receipts and of expenses is given.

Orchard Practice. By W. J. Green. (Circular 108, pp. 8.)

The author discusses numerous factors involved in starting an apple orchard and gives suggestions for training, pruning, spraying, thinning, and rejuvenating an orchard.

Orchard Spraying Suggestions for 1911. By W. J. Green, A. D. Selby, and H. A. Gossard. (Circular 109, pp. 3.)

Brief suggestions on fungicides to control apple scab and other diseases and on insecticides to combine with them are given.

Twenty-ninth Annual Report, 1910. (Annual Report, 1910, pp. XXVII.)

This report gives a record of the receipts and expenditures of the station for the fiscal year 1909–10, and a discussion of the main features of the year's work.

OKLAHOMA STATION, Stillwater, J. A. Wilson, Director.

The Chemistry of the Kafir Corn Kernel. By R. O. Baird. (Bulletin 89, pp. 3–15, figs. 2.)

Investigations on the chemical composition and food and feeding value of the Kafir kernel as compared with Indian corn are reported.

A Study of Bermuda Grass. By C. K. Francis and R. O. Baird. (Bulletin 90, pp. 5–19, figs. 5.)

Investigations on the chemical composition of Bermuda grass 1, 2, and 3 years after planting and on the digestibility of Bermuda hay are reported and discussed. The cultivation of Bermuda grass and the composition and feeding value of Bermuda hay as compared with other hays are discussed.

PENNSYLVANIA STATION, State College, T. F. Hunt, Director.

The Apple in Pennsylvania: Varieties, Planting, and General Care. By J. P. Stewart. (Bulletin 106, pp. 3–20, figs. 3.)

This is a brief résumé of information on the general methods of culture and care of an apple orchard. The picking and proper handling of fruit for storage, and the packing of apples are briefly discussed. A list of varieties adapted to different parts of the State is given.

SOUTH CAROLINA STATION, Clemson College, J. N. Harper, Director.

Twenty-third Annual Report, 1910. (Annual Report, 1910, pp. 73, figs. 3.)

This is a report on the work of the various departments of the station for the fiscal year, including a financial statement.

TEXAS STATION, College Station, H. H. Harrington, Director.

Report of the Director on the Establishment of New State Stations. (Bulletin, 134, pp. 11.)

This is a report on the establishment and needs of the new State substations, followed by a financial statement for the year 1909–10.

WEST VIRGINIA STATION, Morgantown, J. H. Stewart, Director.

Construction of a Silo. By H. Atwood. (Bulletin 129, pp. 187–195, pls. 2.)

The author states the method and cost of construction of a brick silo at the station and discusses briefly the importance of silage for dairy cows, the feeding area, capacity, and filling of the silo.

Construction of a Modern Poultry House and Report of Experiments in Hopper Feeding Laying Hens. By H. Atwood. (Bulletin 130, pp. 195–206+7, pls. 3, dgms. 7.)

One year's experiments in hopper feeding of poultry are reported and the construction of an improved open-front laying house is described.

Plat Experiments with Fertilizers. By J. H. Stewart and H. Atwood. (Bulletin 131, pp. 207–242, pls. 18.)

This bulletin reports results to date of fertilizer experiments reported upon in previous bulletins Nos. 99 and 112 of the station and summarizes the results of the entire investigation.

Wisconsin Station, Madison, H. L. Russell, Director.

The Selection of Feeds for Dairy Cows. By F. W. Woll and G. C. Humphrey. (Bulletin 200, pp. 3–17.)

This is a popular edition of Research Bulletin No. 13 on studies of the protein requirements of dairy cows.

The Management of Heavy Clay Soils. By A. R. Whitson and E. J. Delwiche. (Bulletin 202, pp. 3–17, figs. 5.)

This bulletin discusses the heavy clay soils in Wisconsin and recommends methods of clearing, draining, rotating crops, and maintaining fertility based on results of studies of this soil conducted on the substation farms at Superior and Ashland.

Report of the Director, 1910. By H. L. Russell. (Bulletin 203, pp. 63, figs. 12.)

This bulletin gives a brief account of the work and publications of the station during the year.

The Improvement of Sandy Soils. By A. R. Whitson and F. J. Sievers. (Bulletin 204, pp. 3–25, figs. 5.)

This bulletin discusses, on the basis of experiments at Sparta and of observations elsewhere in the State, the use of legumes, lime, and rotations to improve sandy soils. Methods of planting to counteract wind action are also described.

The Development of Marsh Soils. By A. R. Whitson and F. J. Sievers. (Bulletin 205, pp. 3–22, figs. 7.)

This bulletin discusses the character and extent of marsh soils in Wisconsin and recommends methods of draining, cultivating, fertilizing, and testing acidity of these soils. The bulletin is based upon observations and experiments in different parts of the State.

The Control of Moisture in Cheese. By J. L. Sammis, F. W. Laabs, and S. K. Suzuki. (Circular of Information 20, pp. 14, fig. 1.)

This abstract of Research Bulletin No. 7 briefly describes the methods of conducting the experiments, and answers questions "relating to the effects upon the moisture content of cheese curds, resulting from the use of different temperatures, sizes of curd knives, proportions of rennet, degrees of acidity, pressure, and from varying proportions of fat or water in milk."

Distribution of Licensed Stallions in Counties of Wisconsin. By A. S. Alexander. (Circular of Information 21, pp. 106.)

This circular gives a directory of owners of licensed stallions and jacks by counties, a list of American studbooks certified, and a list not certified by the U. S. Department of Agriculture. Statistics are also given of the increase in numbers of pure-bred, and decrease in numbers of grade and mongrel or scrub stallions.

A Catechism on Bovine Tuberculosis. By H. L. Russell and E. G. Hastings. (Circular of Information 23, pp. 24, figs. 8.)

This is a circular of popular information designed to answer numerous inquiries with reference to tuberculosis of domestic animals, and discusses the cause, effect, and mode of distribution of tuberculosis, the tuberculin test, and methods of controlling the disease.

○

1367 Issued May 24, 1911.

United States Department of Agriculture,

OFFICE OF EXPERIMENT STATIONS.

A. C. TRUE, Director.

LIST OF STATION PUBLICATIONS RECEIVED BY THE OFFICE OF EXPERIMENT STATIONS DURING APRIL, 1911.

NOTE.—These publications are not distributed by the Department of Agriculture, but can usually be obtained, as far as the supply will permit, by applying to the stations issuing them.

ALABAMA COLLEGE STATION, Auburn, J. F. Duggar, Director.

Self-boiled Lime Sulphur and Its Use. By P. F. Williams and J. C. C. Price. (Bulletin 152, pp. 12, pls. 3, figs. 3.)

Descriptions of brown rot and plum curculio and their injuries to peaches are followed by results of spraying experiments on peaches at Auburn. Directions for preparing the self-boiled lime-sulphur mixture and a list of dealers in spraying materials and machinery are given.

Experiments with Cotton. By J. F. Duggar and E. F. Cauthen. (Bulletin 153, pp. 15–40, pls. 4.)

This bulletin reports the results of tests of ground rock phosphate compared with acid phosphate and basic slag phosphate and with varieties in relation to productiveness, earliness, and susceptibility to anthracnose and wilt, and describes these diseases, with methods of treatment.

The Pecan in Alabama. By P. F. Williams. (Bulletin 155, pp. 68, pls. 7, figs. 4.)

Instructions for propagating, cultivating, fertilizing, intercropping, harvesting, and marketing are followed by information relative to the principal insects and diseases and their treatment, and descriptions of the leading pecan varieties. A general form for keeping records is appended.

Bud-worms in Corn. By W. F. Turner. (Circular 8, pp. 7, fig 1.)

This is a brief account of the life history and habits of the bud-worm *Diabrotica 12-punctata*, and methods of reducing or preventing the damage caused by it.

ARKANSAS STATION, Fayetteville, C. F. Adams, Director.

Live-stock Sanitary Laws of Arkansas. By W. Lenton. (Bulletin 106, pp. 351–366.)

A statement of losses by contagious live-stock diseases in the State is followed by a compilation of State laws and regulations, the governor's proclamation in regard to county quarantines, and United States laws applicable to Arkansas.

How to Control the Two Worst Cotton Pests, the Boll Weevil and the Bollworm. By P. Hayhurst. (Circular 4, pp. 4.)

Information is given on "how to get good crops in spite of these pests."

Spanish Peanuts, Dwarf Essex Rape, and Cowpeas for Swine. By P. N. Flint. (Circular 5, pp. 4.)

The feeding value and culture of the crops are briefly discussed.

Farm Butter Making. By C. H. Tourgee. (Circular 6, pp. 4.)

Simple directions for butter making on the farm are given.

How to Control the Scab and Blotch of the Apple. By J. L. Hewitt. (Circular 7, pp. 4.)

The diseases and methods for their control are briefly described.

Does Better Cotton Seed Pay? By M. Nelson. (Circular 8, pp. 4.)

This circular emphasizes the value of good seed and gives a list of the early maturing and high yielding varieties, which are best adapted to Arkansas conditions.

Suggestions on Commercial Muskmelon Growing. By E. Walker. (Circular 9, pp. 4.)

Brief directions are given for fertilizing, preparing the soil, getting a stand, transplanting, and harvesting, with notes on varieties.

GEORGIA STATION, Experiment. M. V. Calvin, Director.

Corn Production. By M. V. Calvin. (Bulletin 93, pp. 147–154, fig. 1.)

Results of tests of varieties, fertilizers, effect of detasseling, seed from different parts of the cob, number of stalks per hill, and ordinary *v.* the Williamson method of culture are reported. Rainfall data are given for the season of 1910 and previous years.

Cotton Production. By M. V. Calvin. (Bulletin 94, pp. 159–164.)

The results of variety and fertilizer tests with cotton during 1910 are reported.

Twenty-second Annual Report, 1909. (Annual Report 1909, pp. 87–96.)

This contains the usual financial statement and brief administrative reports by the director of the station and the president of the board of control.

HAWAII FEDERAL STATION, Honolulu, E. V. Wilcox, Special Agent in Charge.

Killing Weeds with Arsenite of Soda. By E. V. Wilcox. (Press Bulletin 30, pp. 15.)

Experiments with chemicals used for weed destruction are briefly reviewed and trials reported with arsenite of soda, together with a discussion of the possible danger from its use.

ILLINOIS STATION, Urbana, E. Davenport, Director.

Care of Cream on the Farm. By F. A. Jorgensen. (Circular 148, pp. 12, figs. 6.)

This circular points out the causes for the poor quality of hand-separated cream, and describes briefly a type of milk house and cooling tank, and methods of separating, cooling, and handling cream.

Twenty-second Annual Report, 1909. (Annual Report, 1909, pp. 11.)

This is the administrative report of the station, containing notes on the year's work, a complete list of bulletins published since the organization of the station, and a statement of receipts and expenditures.

IOWA STATION, Ames, C. F. Curtiss, Director.

Lacto: A New and Healthful Frozen Dairy Product. By M. Mortensen and J. Gordon. (Bulletin 118, pp. 269–279, charts 2.)

Directions are given for the preparation of a frozen dairy product from loppered whole or skim milk, with the addition of eggs, sugar, lemons, and flavoring material. The product is compared with ice, ice creams, etc., as regards nutritive value and wholesomeness. Studies of the bacterial growth and development of acidity of the product are reported.

The Gumbo Soils of Iowa. By W. H. Stevenson and J. F. Baker. (Bulletin 119, pp. 285–306, figs. 3.)

This bulletin defines gumbo soils, gives information on their geology and distribution in Iowa, describes the methods of management, reports results of physical and chemical analyses, and of tests of drainage, fall and spring plowing, use of green and barnyard manures, and lime.

The Hardy Catalpa in Iowa. By C. A. Scott. (Bulletin 120, pp. 310–325.)

Methods of growing hardy catalapa in Iowa and results obtained on plantations in different parts of the State are described.

Creamery Bookkeeping. By M. Mortensen. (Bulletin 121, pp. 305–322.)

A complete system of bookkeeping for creameries is given and discussed, and the importance of keeping records pointed out.

The White-head Army Worm as a Timothy Pest. By R. L. Webster. (Bulletin 122, pp. 325–348, figs. 15.)

A study of the life history of the white-head army worm and its injuries is reported. Methods for its control and descriptions of the natural enemies are given. A bibliography of the subject is appended.

KANSAS STATION, Manhattan, E. H. Webster, Director.

Spraying Apples. By A. Dickens and T. J. Headlee. (Circular 15, pp. 8.)

Directions for preparing and applying sprays for apple insects and diseases and a list of dealers in spraying materials and appliances are given.

KENTUCKY STATION, Lexington, M. A. Scovell, Director.

Report of the Director of the Kentucky Agricultural Experiment Station to the Governor of Kentucky on the Enforcement of the Food and Drugs Act for the Years 1908 and 1909. (Report on Enforcement Food and Drugs Act, 1908–9, pp. 29.)

This report summarizes the results of inspection of foods, drugs, liquors, and Paris green, as well as of slaughterhouses, dairies, factories, stores, bakeries, etc., where foods are produced and stored or handled. Special attention is given to the question of the use of benzoate of soda as a preservative and of branding and labeling whisky.

LOUISIANA STATIONS, Baton Rouge, W. R. Dodson, Director.

Breeds of Hogs. By W. H. Dalrymple. The Best Crops to Grow for Hogs, and Other Data. By W. R. Dodson and S. E. McClendon. (Bulletin 124, pp. 56, figs. 24.)

This bulletin describes different breeds of hogs and the Schuler methods of curing pork on the farm, and gives information on growing and rotating different crops and mixing feeds for hogs and constructing portable fences and breeding crates.

Diseases of the Fig Tree and Fruit. By C. W. Edgerton. (Bulletin 126, pp. 20, pls. 8.)

Results of studies of fig anthracnose (*Glomerella fructigena*), fig canker (*Tubercularia fici*), limb blight (*Corticium lætum*), rust (*Uredo fici*), soft rot (*Rhizopus nigricans*), die-back of twigs, nematode root galls, and leaf spot are reported and methods of control described.

MARYLAND STATION, College Park, H. J. Patterson, Director.

Twenty-third Annual Report, 1910. (Annual Report, 1910, pp. XXIV+320, figs. 107.)

This contains a brief administrative report by the director, a financial statement, and reprints of Bulletins 137–145.

MASSACHUSETTS STATION, Amherst, W. P. Brooks, Director.

Inspection of Commercial Feed Stuffs. By P. H. Smith and C. L. Perkins. (Bulletin 136, pp. 56.)

This bulletin reports and discusses analyses of commercial feeding stuffs inspected during 1910, defines terms used in feeding stuffs analyses, gives standards of composition for cattle or poultry foods, makes suggestions regarding the selection of feeding stuffs and the compounding of rations, and gives the market prices of the leading feeding stuffs during each month of 1910.

Meteorological Observations. By J. E. Ostrander and C. M. Damon. (Meteorological Bulletin 267, pp. 4.)

This is a summary for March, 1911.

MICHIGAN STATION, East Lansing, R. S. Shaw, Director.

Spray and Practice Outline for Fruit Growers, 1911. By H. J. Eustace and R. H. Pettit. (Special Bulletin 54, pp. 20, figs. 4.)

Methods of controlling the more common insects and diseases are described and directions are given for preparing various fungicides and insecticides.

MINNESOTA STATION, University Farm, St. Paul, A. F. Woods, Director.

Orchard and Garden Spraying. By A. G. Ruggles and E. G. Stakman. (Bulletin 121, pp. 3–32.)

This bulletin describes different insecticides and fungicides, the life histories of the more common insects and diseases attacking the different orchard and garden fruits and vegetables with methods of control, gives information on using spraying machinery, and a list of dealers in spraying materials and appliances.

The Smuts of Grain Crops. By E. M. Freeman and E. C. Stakman. (Bulletin 122, pp. 35–64, figs. 11.)

This bulletin describes the life histories of corn and oat smuts, stinking and loose smuts of wheat, covered and loose smuts of barley, and sorghum grain smuts, with methods of treatment.

MISSOURI COLLEGE STATION, Columbia, F. B. Mumford, Director.

Fattening Cattle on Blue-grass Pasture. By F. B. Mumford. (Bulletin 90, pp. 289–388, figs. 5.)

This bulletin reports and discusses the results of 5 years' feeding experiments bearing on the relation to profitable beef production of the following factors: Age and condition of the animal, length of feeding period, supplementary feeds to corn and blue-grass pasture, seasonal influence, and margin between buying and selling prices.

Inspection and Analyses of Commercial Fertilizers. By P. F. Trowbridge et al. (Bulletin 91, pp. 396–448.)

This contains the text of the State fertilizer law, notes on the use of fertilizers in Missouri, and analyses and valuations of fertilizers inspected in 1910.

Factors Affecting the Per Cent of Fat in Cream from Farm Separators. By C. H. Eckles and H. S. Wayman. (Bulletin 94, pp. 517–558, figs. 12.)

This bulletin reports the results of investigations on the effect on percentage of butter fat in separator cream of the speed of the machine, and the temperature, richness, acidity, and rate of inflow of the milk.

Pork Production with Forage Crops. By F. B. Mumford and C. A. Wilson. (Bulletin 95, pp. 561–597.)

This bulletin reports the results of 3 years' feeding experiments in studying the adaptability of blue grass, alfalfa, cowpeas, soy beans, clover, rape, sorghum, and oats for forage crops, to determine the proceeds per acre from pasturing off corn and rye, and to work out forage-crop rotations adaptable for hog farms.

Report of the Director for the Year Ending June 30, 1910. By F. B. Mumford. (Bulletin 96, pp. 603–624, fig. 1.)

This contains a financial statement and the administrative report by the director reviewing the year's work of the station.

Raising Calves on Skim Milk. By C. H. Eckles and G. C. White. (Circular 47, pp. 99–106, figs. 3.)

This circular gives information on raising calves by hand, describes calf scours, and makes suggestions for preventing and curing the trouble.

MONTANA STATION, Bozeman, F. B. Linfield, Director.

The Destruction of Hydraulic Cements by the Action of Alkali Salts. By E. Burke and R. M. Pinckney. (Bulletin 81, pp. 47–131, figs. 16.)

Investigations on the chemical action of alkali upon cement are reported, and means whereby the destructive action may be lessened are described.

Flax Growing in Montana. By A. Atkinson and D. B. Swingle. (Circular 6, pp. 9–16.)

Directions for growing flax, with special reference to avoiding wilt disease, are given.

NEVADA STATION, Reno, J. E. Stubbs, Director.

First Annual Report of the Department of Food and Drugs Inspection for the Year Ending December 31, 1910. By S. C. Dinsmore. (Bulletin 74, pp. 68.)

This report contains information for sending samples, reprints of circulars of information to manufacturers and dealers, and the results of analyses of foods and drugs inspected during 1910, with brief remarks upon the analyses.

The Sugar-beet Industry in Nevada. By C. S. Knight. (Bulletin 75, pp. 9–38, figs. 18.)

This bulletin is intended to give brief and practical suggestions to the sugar-beet growers and other farmers who are interested in the culture of the crop. Special attention is given to the cultural methods and the irrigation of the crop. The adaptability of the sugar-beet industry to Nevada is discussed.

The Potato Eelworm. By S. B. Doten and P. Frandsen, trans. by Marie Trosi. (Bulletin 76, pp. 7, figs. 2.)

This is a brief account in Italian of this pest.

New Jersey Stations, New Brunswick, J. G. Lipman, Acting Director.

Insects Injurious to the Peach Trees in New Jersey. By J. B. Smith. (Bulletin 235, pp. 3–43, pls. 4, figs. 14.)

This bulletin presents the life histories and the injuries to the peach of the peach-tree borer, plum curculio, San José scale, terrapin scale, black peach louse, green peach louse, fruit-bark beetle, peach twig borer, and rose bug, and gives directions for controlling these pests.

Thirtieth Annual Report, 1909. (Annual Report, 1909, pp. XVIII+459, pls. 54, figs. 14.)

This includes a financial statement, a brief summary of the work of the year by the director, and detailed accounts of work in the departments of chemistry, animal husbandry, horticulture, soil chemistry and bacteriology, biology, botany, and entomology during the year. A report on mosquito work for 1909 is also included.

New Mexico Station, Agricultural College, L. Foster, Director.

Twenty-first Annual Report, 1910. (Annual Report, 1910, pp. 38.)

This contains brief reports by the director and heads of the State departments, and a financial statement.

New York State Station, Geneva, W. H. Jordan, Director.

Observations on Screening Cabbage Seed Beds. By W. J. Schoene. (Bulletin 334, pp. 13–34, pls. 2.)

This bulletin describes the principal insects of cabbage-seed beds, gives the results of practical tests with cheesecloth for the protection of the beds against these insects, and makes suggestions regarding the screening of seed beds.

Screening Seed Beds Controls Cabbage Maggots. By F. H. Hall. (Bulletin 334, popular edition, pp. 6, figs. 3.)

This is a popular edition of the above.

North Dakota Station, Agricultural College, J. A. Worst, Director.

Analysis of Mixed Paints. (Paint Bulletin 5, pp. 57–71.)

Results of inspection to date are reported with brief remarks.

Twenty-first Annual Report, 1910. (Annual Report, 1910, pp. 59.)

This contains the usual administrative report by the director and heads of departments reviewing the year's work of the station and a financial statement.

Ohio Station, Wooster, C. E. Thorne, Director.

The Composition of Wheat: Influence of Various Factors on the Phosphorus, Potassium, and Nitrogen Content of the Wheat Plant. By J. W. Ames. (Bulletin 221, pp. 37, pl. 1.)

Analyses with reference to fertilizing constituents of wheat crops grown on soils receiving different fertilizers for varying lengths of time are reported and discussed with particular reference to the relation of the fertilizing constituents of the soil to the composition and yield of the crop.

The Rejuvenation of Orchards. By F. H. Ballou. (Bulletin 224, pp. 117–150, figs. 20.)

This is a progress report for 1910 giving results of spraying experiments by the station in apple orchards at several places in southeastern Ohio and a summary of work by orchard owners in Washington and Athens Counties.

Seeding Lawns and Permanent Pastures. (Circular 106, pp. 2.)

Brief directions for seeding and fertilizing are given.

OREGON STATION, Corvallis, J. Withycombe, Director.

Garden Management, I. By A. G. B. Bouquet. (Circular 11, pp. 8, figs. 3.)

Directions are given for preparing the soil, selecting and sowing garden seeds, arranging the crops, and thinning, fertilizing, and transplanting plants.

Three Species of Apple Plant Lice in Oregon. By H. F. Wilson. (Circular 12, pp. 3–8.)

The life histories of the green, brown, and woolly apple aphis are outlined and directions are given for the preparation and use of sprays for their control.

Orchard Sprays and Spraying. By A. B. Cordley and H. S. Jackson. (Circular 13, pp. 3–16.)

Insecticides, fungicides, and combined sprays are defined and directions given for the preparation and use of the more common sprays of apple, peach, pear, plum and prune, and cherry orchards.

PENNSYLVANIA STATION, State College, T. F. Hunt, Director.

Variety Tests of Oats. By F. D. Gardner and J. A. Runk. (Bulletin 108, pp. 3–14.)

This is a report of a continuation of variety tests giving the results obtained since 1905.

SOUTH DAKOTA STATION, Brookings, J. W. Wilson, Director.

Milk-powder Starters in Creameries. By C. Larsen and W. White. (Bulletin 123, pp. 3–14.)

Tests of milk-powder solutions as compared with natural milk for starter making in creameries are reported. The cost of the milk-powder starter and the conditions under which its use is practicable are discussed.

Progress of Grain Investigations. By C. Willis and M. Champlin. (Bulletin 124, pp. 17–55, fig. 1.)

This is a report of progress in tests of varieties and improved and ordinary methods of culture of wheat, emmer, oats, barley, millet, corn, and grain sorghums made in cooperation with the Bureau of Plant Industry of this department at Highmore, Eureka, and Cottonwood substations.

TEXAS STATION, College Station, H. H. Harrington, Director.

Feeding Experiments With Steers and Hogs. By J. T. Cruse. (Bulletin 135, pp. 25, figs. 8.)

Results are reported of steer-feeding experiments with cottonseed meal, cold pressed cottonseed cake, cottonseed hulls, Kafir head forage, rough red rice, and Johnson grass hay; and of hog-feeding experiments with cottonseed meal, corn chops, tankage, ground rough red rice, and alfalfa meal.

UTAH STATION, Logan, E. D. Ball, Director.

The Reclamation of Seeped and Alkali Lands. By C. F. Brown and R. A. Hart. (Bulletin 111, pp. 75–92, figs. 8.)

Results of drainage operations during 1909–10 at Huntington, Utah, and at several points in western Colorado in cooperation with the Office of Experiment Stations of this department are reported, and recommendations regarding the reclamation of such soils are made.

A Report of Seven Years' Investigation of Dry Farming Methods. By L. A. Merrill. (Bulletin 112, pp. 95–162, figs. 14.)

This bulletin reviews the history and organization of the work, describes the soil and rainfall conditions on the dry farms, reports results of experiments with wheat, oats, barley, rye, emmer, corn, potatoes, hemp, alfalfa, and brome grass, as well as on methods of plowing, seeding, and fallow *v.* continuous cropping, discusses the relations of yield to rainfall and cost of wheat growing, and makes practical suggestions regarding selecting the land, harrowing, preparing the seed bed, use of the roller, selection and treatment of the seed, time and rate of seeding, and harvesting.

VIRGINIA STATION, Blacksburg, S. W. Fletcher, Director.

The Dairy Cow and Her Record. By W. K. Brainerd. (Circular 8, pp. 23, figs. 7.)

This circular outlines practical and inexpensive methods of determining and recording the amount of milk and the percentage of butter fat produced at each milking.

Some Diseases of Swine. By N. S. Mayo. (Bulletin 189, pp. 3–19, figs. 6.)

This bulletin describes swine mange, swine lice (*Hæmatopinus suis*), "bull nose" (necrotic stomatitis), chronic pneumonia or coughing, hog cholera, and swine paralysis, with methods for their control. Inexpensive shelter houses and dipping vats for hogs are also described.

Cooperative Herd Testing. By W. D. Saunders and C. W. Holdaway. (Bulletin 190, pp. 3–30, figs. 14.)

This bulletin reports and discusses the results of testing five dairy herds in Virginia for milk and butter production and makes general recommendations for improving dairy herds.

WASHINGTON STATION, Pullman, R. W. Thatcher, Director.

Commercial Fertilizers. By E. Fulmer. (Bulletin 98, pp. 24.)

This bulletin contains the text of the State fertilizer law, a statement regarding the use of fertilizers in Washington, explanations regarding the sources, character, and prices of fertilizing materials, and analyses and valuation of fertilizers inspected during 1910.

WEST VIRGINIA STATION, Morgantown, J. H. Stewart, Director.

Commercial Fertilizers. By B. H. Hite and F. B. Kunst. (Bulletin 132, pp. 52.)

Results of analyses of fertilizers inspected during 1910 are reported.

WISCONSIN STATION, Madison, H. L. Russell, Director.

Planting the Commercial Orchard. By J. G. Moore. (Bulletin 201, pp. 3–34, figs. 15.)

A discussion of the possibilities of orcharding in Wisconsin is followed by suggestions for selecting the site; planting and laying out the orchard; selecting, setting, and pruning trees; and ordering nursery stock, with brief notes on varieties adapted to the State.

Studies of the Protein Requirements of Dairy Cows. By F. W. Woll and G. C. Humphrey. (Research Bulletin 13, pp. 175–216.)

This reports and discusses the results of nine years' feeding experiments comparing medium and high protein rations for dairy cows, gives information on selecting dairy feeds for Wisconsin, and presents a compilation of analyses of feeding stuffs sold in the State.

Sulphur Requirements of Farm Crops in Relation to the Soil and Air Supply. By E. B. Hart and W. H. Peterson. (Research Bulletin 14, pp. 21.)

Investigations are reported bearing on the total sulphur in feeding stuffs, the amounts of sulphur trioxid removed by crops, lost by drainage, and supplied by rainfall, and that found in normal soils and soils under different systems of cropping and manuring. A brief discussion of sources of sulphur and its importance as an essential element of plant food is given.

Chemical Analyses of Licensed Commercial Feeding Stuffs, 1910. By F. W. Woll. (Circular of Information 22, pp. 109.)

This circular reports in detail the results of inspection of feeding stuffs.

Commercial Feeding Stuffs and Fertilizers Licensed for Sale in Wisconsin, 1911. By F. W. Woll. (Circular of Information 24, pp. 12.)

A list of licensed commercial feeding stuffs and fertilizers for 1911 is given.

Wyoming Station, Laramie, H. G. Knight, Director.

Potatoes. By T. S. Parsons. (Bulletin 86, pp. 20, figs. 4.)

This bulletin contains notes on the history and food value of the potato, reports results of tests of varieties, irrigation, and cut *v.* whole seed, and makes suggestions on preparing the soil, selecting seed potatoes, planting, irrigating, harvesting, and storing.

Wyoming Forage Plants and Their Chemical Composition—Studies No. 4. By H. G. Knight, F. E. Hepner, and A. Nelson. (Bulletin 87, pp. 3–152, figs. 44.)

This is a continuation of studies of the effect of altitude on the composition of plants, previously reported upon in Bulletins 65, 70, and 76, and gives analyses of forage plants collected during the summer of 1908–9. An index of the work to date is appended.

O

1373 Issued June 28, 1911.

United States Department of Agriculture,

OFFICE OF EXPERIMENT STATIONS.

A. C. TRUE, Director.

LIST OF STATION PUBLICATIONS RECEIVED BY THE OFFICE OF EXPERIMENT STATIONS DURING MAY, 1911.

NOTE.—These publications are not distributed by the Department of Agriculture, but can usually be obtained, as far as the supply will permit, by applying to the stations issuing them.

ALABAMA COLLEGE STATION, Auburn, J. F. Duggar, Director.

Corn, Soy-bean Pastures, Tankage, and Cotton-seed Meal for Fattening Hogs. By D. T. Gray, J. W. Ridgway, and E. R. Eudaly. (Bulletin 154, pp. 45–87, figs. 14.)

This bulletin reports the results of three years' feeding experiments at the Alabama Station to determine the value of soy-bean pastures and the most profitable amount of corn to use for fattening hogs on these pastures, and to study the question of hardening lard and meat of hogs that had been thus pastured. Feeding experiments with tankage and cotton-seed meal are also reported, together with a summary of Bulletin 143 of the station dealing with supplementary feeds to corn for southern hog production.

ARKANSAS STATION, Fayetteville, C. F. Adams, Director.

Hog Cholera and State Vaccination. By J. F. Stanford. (Circular 12, pp. 8, figs. 4.)

This circular briefly describes the disease and methods of producing, testing, and using the hog-cholera serum, with information on how hogs become infected with cholera and its prevention, caring for hogs before and after vaccination, and diseases resembling hog cholera.

CONNECTICUT STORRS STATION, Storrs, L. A. Clinton, Director.

Apple Growing in New England. IV, Orchard Management. By C. D. Jarvis. (Bulletin 66, pp. 211–263, figs. 34.)

This bulletin, the fourth of a series of papers, describes systems of cultivation, soil management, pruning, spraying, and thinning apples, and "is intended more for the diversified farmer than for the specialized apple grower."

Water Glass a Preservative for Eggs. By G. H. Lamson. (Bulletin 67, pp. 267–274, fig. 1.)

This bulletin contains notes on the decomposition, infection, selection and care, and preservation and storage of eggs, with particular reference to the use of water glass.

DELAWARE STATION, Newark, H. Hayward, Director.

The Double Blossom of the Dewberry (*Fusarium rubi*). By M. T. Cook. (Bulletin 93, pp. 3–12, figs. 12.)

Studies of the life history of the disease are reported in this bulletin, with remedies for its control.

Florida Station, Gainesville, P. H. Rolfs, Director.

Annual Report, 1910. (Annual Report, 1910, pp. XCVI+XII, figs. 30, dgm. 1.)

This contains the administrative report by the director reviewing the year's work of the station, detailed reports by the animal industrialist, chemist, entomologist, plant pathologist, assistant plant pathologist, assistant botanist, and librarian of the station, a financial statement and list of publications issued during the year, with index.

Hawaii Federal Station, Honolulu, E. V. Wilcox, Special Agent in Charge.

Annual Report, 1910. (Annual Report, 1910, pp. 64, pls. 9, figs. 4.)

This contains a summary of investigations of the Hawaii Station for 1910 by the special agent, and detailed reports for the departments of entomology, horticulture, chemistry, and agronomy.

Indiana Station, Lafayette, A. Goss, Director.

Summary of Five Years' Results of Cooperative Tests of Varieties of Corn, Wheat, Oats, Soy Beans, and Cowpeas, 1906–1910. By A. T. Wiancko and C. O. Cromer. (Bulletin 149, pp. 3–23, fig. 1.)

This presents a summary of five years' tests including 1910, the results of the first four years having been reported upon in Bulletins 117, 124, 132, and 139. Brief descriptions of the varieties tested for two years or more are also included.

Suggestions for Beginners in Alfalfa Culture. By A. T. Wiancko. (Circular 27, pp. 7)

Information is given on soils adapted for alfalfa growing in Indiana, methods of fertilizing, rate and time of seeding, preparing the soil, inoculating, clipping, cutting, and pasturing the crop.

Illinois Station, Urbana, E. Davenport, Director.

Results of Scientific Soil Treatment. By F. I. Mann. Methods and Results of Ten Years' Soil Investigations in Illinois. By C. G. Hopkins. (Circular 149, pp. 32, figs. 10.)

Part 1 of this circular discusses the relation of soil preservation to permanent agriculture; part 2 describes methods and results of Illinois soil investigations to date, with notes on fertilizing materials available.

Iowa Station, Ames, C. F. Curtiss, Director.

The Wheat-head Army-worm as a Timothy Pest. By R. L. Webster. (Bulletin 122, popular edition, pp. 3–7, figs. 5.)

This popular edition of Bulletin No. 122 briefly describes the insect and its injuries and methods of control.

Louisiana Stations, Baton Rouge, W. R. Dodson, Director.

Report of Commercial Feed Stuffs. By J. E. Halligan. (Feed Stuffs Report, 1909–10, pp. 120.)

Analyses of 9,381 samples of feeding stuffs collected in the State during the season of 1909–10 are reported and briefly discussed.

Maine Station, Orono, C. D. Woods, Director.

Official Inspections. (Official Inspection 29, pp. 36.)

This presents the chief requirements of the State fertilizer law, discusses the constituents and valuation of fertilizers, gives notes on the use of wood ashes and a so-called "mineral fertilizer," and the results of analyses of commercial fertilizers by the station for 1910.

Official Inspections. (Official Inspection 30, pp. 37–44.)

The results of inspection of oysters, pork sausage, and clams collected during the fall of 1910 are reported, together with notes warning against the sale of fictitiously labeled products, such as imitation beer.

Official Inspections. (Official Inspection 31, pp. 45–64.)

The chief requirements of the feeding-stuffs law and the results of inspection of feeding stuffs for the year ended March, 1911 are reported, together with a notice of changes in the law.

Poultry Diseases and Their Treatment. By R. Pearl, F. M. Surface, and Maynie R. Curtis. (Document 398, pp. IX+216, figs. 49.)

This work is designed "to give a clear and reasonably complete compilation and digest of the information now existing in the literature regarding the commoner diseases of poultry, their diagnosis, etiology, treatment, and prognosis."

Suggestions for Woodlot Owners in Maine. By J. M. Briscoe. (Document 402, pp. 27, figs. 8.)

This contains information as to the condition of existing woodlots in Maine, describes the special characteristics of the white pine (*Pinus strobus*), and gives suggestions on managing woodlots of young, middle-aged, and mature stands, and planting new stands.

Massachusetts Station, Amherst, W. P. Brooks, Director.

Meteorological Observations. By J. E. Ostrander and C. M. Damon. (Meteorological Bulletin 268, pp. 4.)

This is a summary for April, 1911.

Michigan Station, East Lansing, R. S. Shaw, Director.

Lime-sulphur Spray. By J. E. Harris. (Technical Bulletin 6, pp. 3–15.)

This is a technical bulletin, part 1 of which describes the methods of analysis of lime-sulphur solution used in the investigations reported in part 2, these bearing on the composition of lime-sulphur solution as affected by lime and magnesia, storing in contact with sediment, and reheating.

Manufacture and Storage of Lime-sulphur Spray. By A. J. Patten. (Circular 10, pp. 69–77.)

This is substantially a reprint of part 2 of Technical Bulletin No. 6, noted above.

Nebraska Station, Lincoln, E. A. Burnett, Director.

Alfalfa Management. By C. W. Pugsley. (Bulletin 120, pp. 3–13.)

This bulletin gives explicit instructions in regard to alfalfa soil, preparing the seed bed, method and time of seeding, inoculating and treating seeds, disking, manuring, thickening the stand, producing seed, haying, and pasturing alfalfa.

New York Cornell Station, Ithaca, L. H. Bailey, Director.

Spray Injury Induced by Lime-sulphur Preparations. By E. Wallace. (Bulletin 288, pp. 101–137, pls. 4.)

This reviews previous investigations on the subject and gives an account of spraying experiments at Ithaca and Sodus, N. Y., during 1909–10, dealing with the influence on lime-sulphur injury of the following factors: Weather conditions, concentration of mixture, method of application, arsenical combination, addition of lime or sediment, precipitation by carbon dioxid, apple scab and insect injuries, health and vigor of trees, and varietal susceptibility. Tests are also reported of injury to peach foliage and of russeting of apples.

Orange Hawkweed or Paint Brush. By P. J. White. (Circular 9, pp. 9–12, fig. 1.)

This contains a brief description of the weed, with methods for its control.

Propagation of Starter for Butter Making and Cheese Making. By E. S. Guthrie. (Circular 10, pp. 13–16.)

The several steps involved in the method presented are briefly described with general directions.

NEW YORK STATE STATION, Geneva, W. H. Jordan, Director.

Some Potato Fertilizer Tests. By F. H. Hall. (Bulletin 327, popular edition, pp. 2–4.)

This is a popular edition of Bulletin 327.

Some Troubles of New York Plants. By F. H. Hall. (Bulletin 328, popular edition, pp. 2–12, figs. 2.)

This is a popular edition of Bulletin 328.

Five Important Grape Insects and Their Repression. By F. H. Hall. (Bulletin 331, popular edition, pp. 3–16, figs. 10.)

This is a popular edition of Bulletin 331.

Spraying to Eradicate Dandelions from Lawns. By G. T. French. (Bulletin 335, pp. 35–43.)

This bulletin reports the results of spraying experiments in 1909–10 in the eradication of dandelions from lawns and of a cutting test to determine the vitality of the dandelion root, with brief reference to the work of other investigators.

Publicity and Payment Based on Quality as Factors in Improving a City Milk Supply. By H. A. Harding. (Bulletin 337, pp. 79–114, fig. 1.)

This bulletin records the results of a three-years' study "of the influence upon a city milk supply, of publicity regarding the sanitary conditions under which the milk was produced, and of payment to the producer on the basis of the sanitary quality of the product."

PORTO RICO STATION, Mayaguez, D. W. May, Special Agent in Charge.

Insects Injurious to Citrus Fruits and Methods for Combating Them. By W. V. Tower. (Bulletin 10, pp. 35, pls. 5.)

This bulletin describes life histories of the orange-leaf weevil (*Diaprepes spengleri*), small orange-leaf weevil or "green bug," May beetle (*Lachnosterna* sp.), orange dog, brown ant (*Solenopsis geminata*), white fly (*Aleyrodes howardi*), red spider, rust mite, purple scale (*Lepidosaphes beckii*), white scale (*Chionaspis citri*), Florida red scale (*Chrysomphalus aonidium*), and hemispherical scale (*Saissetia hemisphærica*), with methods of control, including descriptions of beneficial fungi, and gives information on the causes of scarred fruit, and on the use of windbreaks and of different insecticides and fungicides, with directions for making miscible oils.

TEXAS STATION, College Station, H. H. Harrington, Director.

Organic Phosphoric Acid of the Soil. By G. S. Fraps. (Bulletin 136, pp. 5–33.)

The investigations reported in this bulletin bear on the solubility of phosphates in ammonia, fixation of phosphoric acid from ammonia and from solution, ratio of soil to solvent action of acid and ammonia, ammonia-soluble soil constituents, formation of ammonia-soluble phosphoric acid, ammonia-soluble phosphoric acid from ignited soils with and without acid extraction, relative acid, ammonia, and ignition-soluble phosphoric acid, effect of ignition on solubility of phosphoric acid and other soil constituents, and the ignition-soluble inorganic phosphoric acid in Texas soils, with a discussion of methods of estimating organic phosphorus and of the conclusions drawn in previous work.

Utah Station, Logan, E. D. Ball, Director.

The Influence of the Combined Harvester on the Value of the Wheat. By R. Stewart and C. T. Hirst. (Bulletin 113, pp. 165–177, pls. 2.)

This investigation included a study of the yield and chemical composition of the milling products, and of the bread-making value of flour from two varieties of wheat, as affected by methods of harvesting.

Virginia Truck Station, Norfolk, T. C. Johnson, Director.

Spraying Cucumbers and Cantaloups. By T. C. Johnson. (Bulletin 5, pp. 85–100.)

This bulletin reports the results of three years' spraying experiments with Bordeaux mixture, and also with Bordeaux mixture, sulfocide, self-boiled lime-sulphur, and commercial lime-sulphur during 1910 to determine their relative efficiency in controlling anthracnose and mildew of cucumbers and cantaloups.

West Virginia Station, Morgantown, J. H. Stewart, Director.

Suggestions for Spraying. By W. E. Rumsey, N. J. Giddings, and A. L. Dacy. (Bulletin 133, pp. 5–26, figs. 5.)

Information on equipment needed for spraying is given in this bulletin, together with remedies for the more common diseases and insects of the apple, pear, peach, plum, cherry, grape, and potato, formulas of different sprays, and a list of dealers in spray materials and appliances.

Wisconsin Station, Madison, H. L. Russell, Director.

Tobacco Culture in Wisconsin. By J. Johnson. (Bulletin 206, pp. 3–30, figs. 6.)

This bulletin discusses the cost and profits of growing tobacco, gives notes on Wisconsin soils adapted for the purpose, and the effect of tobacco on soils, followed by detailed directions for propagating, cultivating, fertilizing, and curing the crop, and notes on varieties and seed selection.

The Management of a Bearing Orchard. By J. G. Moore. (Bulletin 207, pp. 3–34, figs. 14.)

This bulletin gives information on orchard soil management before and after bearing and in young orchards, fertilization, pruning both bearing and neglected orchards, treating wounds, and spraying. Directions for preparing and using different spray mixtures are appended.

Buttermilk Cheese Making at the Creamery. By J. L. Sammis. (Bulletin 211, pp. 3–17, figs. 7.)

Directions for making and marketing buttermilk cheese are given in this bulletin.

Barley Culture in Wisconsin. By R. A. Moore and A. L. Stone. (Bulletin 212, pp. 3–17, figs. 7.)

This bulletin gives a brief account of 12 years' selection and breeding experiments with barley at the station followed by information on testing and sowing the seed, harvesting the grain, preventing rust and smut, and marketing.

Analyses of Licensed Commercial Fertilizers, 1911. By F. W. Woll. (Circular of Information 25, pp. 12.)

This circular reports the analyses of licensed commercial fertilizers for 1911, with an explanation of terms used and brief notes on the valuation of fertilizers and on fertilizer inspection.

Wyoming Station, Laramie, H. G. Knight, Director.

Woody Aster (*Xylorrhiza parryi*). By O. L. Prien and L. C. Raiford. (Preliminary Bulletin 88, pp. 3–20, figs. 4.)

A statement of some sheep losses attributed to the woody aster is followed by a description of the plant and a fungus (*Puccinia xylorrhizæ*) which infects it, and a report of the results of one season's investigations into the poisonous character of the plant.

○

1383 Issued August 10, 1911.

United States Department of Agriculture,

OFFICE OF EXPERIMENT STATIONS.

A. C. TRUE, Director.

LIST OF STATION PUBLICATIONS RECEIVED BY THE OFFICE OF EXPERIMENT STATIONS DURING JUNE, 1911.

NOTE.—These publications are not distributed by the Department of Agriculture, but can usually be obtained, as far as the supply will permit, by applying to the stations issuing them.

ALABAMA TUSKEGEE STATION, Tuskegee Institute, G. W. Carver, Director.

Some Possibilities of the Cowpea in Macon County, Alabama. By G. W. Carver. (Bulletin 19, pp. 5–23, figs. 5.)

This bulletin discusses the history, origin, varieties, and culture of cowpeas, and gives information on their value as food for man and animals, together with thirty-two recipes for the preparation of the pea for table use. Notes are also given on the principal insects and diseases of the plant and methods of control.

COLORADO STATION, Fort Collins, C. P. Gillette, Director.

The Potato Industry of Colorado. By C. L. Fitch and E. R. Bennett. (Bulletin 175, pp. 3–80, pl. 1, figs. 44.)

This bulletin reviews the history of the potato industry in the State, discusses in detail potato growing and its problems, describes the principal potato diseases and insects of Colorado with methods for their control, methods of constructing and managing potato cellars, and gives information on storing and marketing the crop with notes on losses resulting from poor stands, followed by a brief report of field work in 1910.

Productiveness and Degeneracy of the Irish Potato. By C. L. Fitch. (Bulletin 176, pp. 3–16, figs. 8.)

This bulletin contains a preliminary report of potato studies in Colorado, bearing on productiveness, eradication of defects, and effect of changes of seed potatoes, with particular reference to the Pearl variety.

CONNECTICUT STATE STATION, New Haven, E. H. Jenkins, Director.

Inheritance in Maize. By E. M. East and H. K. Hayes. (Bulletin 167, pp. 5–142, pls. 25.)

This bulletin describes the origin and varieties of maize, reviews the work of other investigators on inheritance in maize, and reports the results of studies conducted since 1906 at the Connecticut State Station, partly in cooperation with the Bussey Institution, bearing on inheritance of different endosperms and plant characters and the occurrence of Xenia. Reference to the literature on the subject is cited.

Improvement in Corn. By H. K. Hayes and E. M. East. (Bulletin 168, pp. 3–21, pls. 4, figs. 2.)

This bulletin is intended to outline the possibilities of improving corn in the light of the most recent investigations.

Report of the Station Botanist, 1909–10. By G. P. Clinton. (Biennial Report 1909–10, pt. 10, pp. 713–774, pls. 8.)

This is a review of the different lines of work of the department of botany of the station during 1909–10 and forms a part of the biennial report of the year.

Report of the State Forester. 1910. By S. N. Spring. (Biennial Report 1909–10, pt. 11, pp. 775–804, pls. 3, fig. 1.)

This is part 11 of the biennial report, and contains statistics of forest fires in Connecticut for 1909–10, reviews the work of the fire warden service in the State during this time, and gives the names and addresses of the different town fire wardens for 1911.

CONNECTICUT STORRS STATION, Storrs, L. A. Clinton, Director.

Bacillary White Diarrhea of Young Chicks. By L. F. Rettger and F. H. Stoneburn. (Bulletin 68, pp. 279–301, figs. 6.)

This bulletin reports a continuation of investigations of bacillary white diarrhea, the experiments here reported bearing on the production of the disease by infection with the specific organism obtained from infected ovaries, eggs, and chicks. A summary of Bulletin 60 of the station reporting the preliminary work on the investigation is also given, together with a description of the symptoms and post-mortem appearances of the disease and suggestions for its control.

DELAWARE STATION, Newark, H. Hayward, Director.

Anthrax. By C. F. Dawson. (Bulletin 90, pp. 3–61.)

This bulletin reviews the history and nature of anthrax and reports the results of experiments with different vaccines at the Delaware Station in cooperation with the Bureau of Animal Industry of this department.

The Relation of Parasitic Fungi to the Contents of the Cells of the Host Plants. I, The Toxicity of Tannin. By M. T. Cook and J. J. Taubenhaus. (Bulletin 91, pp. 77, figs. 14.)

This bulletin reports the results of a continuation of an extensive series of experiments on parasitic and saprophytic fungi in their relation to various substances, with particular reference to tannin.

Annual Report of the Director for the Fiscal Year Ending June 30, 1910. (Bulletin 92, pp. 5–8.)

This contains a brief administrative report, financial statement, and list of publications for the year.

FLORIDA STATION, Gainesville, P. H. Rolfs, Director.

Scaly Bark or "Nail-head Rust" of Citrus (*Cladosporium herbarum* var. *citricolum*). By H. S. Fawcett. (Bulletin 106, pp. 41, figs. 23.)

Part 1 of this bulletin discusses the cause of scaly bark, means of its prevention and cure, and describes its earliest distinguishing characteristics based on the results of culture experiments with the fungus *C. herbarum* var. *citricolum* reported in Part 2. A bibliography is also given.

GEORGIA STATION, Experiment, M. V. Calvin, Director.

The Cotton Red Spider. By E. L. Worsham. (Bulletin 92, pp. 135–141, pls. 5.)

This bulletin describes the life cycle of the insect, the nature of its injuries to cotton and other of its food plants, and reports the results of spraying experiments with different insecticides during July, 1909, for the control of the pest. Brief cultural suggestions for its eradication are also given.

INDIANA STATION, Lafayette, A. Goss, Director.

How to Grow More and Better Corn. By A. Goss et al. (Circular 25, pp. 2–36, figs. 10.)

This circular gives information on seed selection, planting, and cultivating corn with compilation of data based on work at the Indiana and Ohio stations. Corn insects and smut are also briefly discussed with methods of control.

Milk Production, IV. Computing Rations for Dairy Cows. By O. F. Hunziker and O. E. Reed. (Circular 26, pp. 21.)

This circular gives tables and directions for the use of farmers in formulating and calculating rations for dairy cows.

IOWA STATION, Ames, C. F. Curtiss, Director.

Classification of Ice Cream and Related Frozen Products. By M. Mortensen. Score Card for Ice Cream Judging. (Bulletin 123, pp. 353–365, fig. 1.)

This bulletin gives the classification adopted at Iowa of various frozen food products, with explanation of formulas and a copy of an ice cream score card.

A Centrifugal Method for the Determination of Humus. By A. A. Wells, W. H. Stevenson, and W. F. Coover. (Bulletin 124, pp. 370–384, figs. 4.)

A centrifugal method worked out at the Iowa Station is described in this bulletin and compared with the Frear and Mooers-Hampton modifications of the official method.

KENTUCKY STATION, Lexington, M. A. Scovell, Director.

Boys' Corn Clubs and Improved Methods of Corn Growing. By T. R. Bryant. (Bulletin 153, pp. 3–13.)

This bulletin contains a copy of the constitution and by-laws for a boys' agricultural club and of the State corn score card, and gives general rules for the use of fertilizers in the State and information on selecting, preserving, testing, grading, cultivating, and judging corn with a description of a standard ear of corn for Kentucky.

MAINE STATION, Orono, C. D. Woods, Director.

Finances, Meteorology, Index. (Bulletin 186, pp. 393–435+XII.)

This bulletin, being a part of the annual report, contains the meteorological observations for the year 1910, report of the treasurer for the fiscal year, and index to reports for 1906–1910 and to Bulletins 125–186, inclusive, together with a list of publications for the year.

Insect Notes for 1910. By O. A. Johannsen. (Bulletin 187, pp. 24, pls. 8.)

This bulletin contains brief notes on some of the more important insects studied at the station during the year 1910, with more extended descriptions of some gall insects and of four new species of Psyllidæ.

Field Experiments. By C. D. Woods. (Bulletin 188, pp. 25–32.)

Results of tests of varieties of oats conducted by the station on Highmoor Farm during 1910 and of high v. modified ridge culture for potatoes from 1907–1909, inclusive, at various points in Aroostook County are reported in this bulletin.

Orchard Spraying Problems and Experiments: A Review of and a Contribution to Previous Data. By W. W. Bonns. (Bulletin 189, pp. 33–80, pls. 12, figs. 10.)

This bulletin reviews previous work by other investigators bearing on injury to foliage and fruit from Bordeaux mixture and from the use of sulphur and sulphur compounds as fungicides and summer sprays, and reports the results of spraying tests at the station during 1910 to determine the comparative efficiency of lime-sulphur and Bordeaux mixture as fungicides, the possible injury to foliage and fruit from these sprays, the effectiveness of arsenate of lead in combination with the lime-sulphur solutions, and the relation of possible leaf and fruit injury to such combinations.

Maryland Station, College Park, H. J. Patterson, Director.

Aphidiinæ of North America. By A. B. Gahan. (Bulletin 152, pp. 147–200, figs. 11.)

This bulletin reports the results of studies of the classification of species of this subfamily of insects, giving a description of five new species, together with a redescription of all established species of which authentic specimens could be obtained, and reproduced descriptions of all species of which no authentic specimens were obtainable.

Massachusetts Station, Amherst, W. P. Brooks, Director.

Inspection of Commercial Feed Stuffs. By P. H. Smith et al. (Bulletin 136, pp. 3–56.)

This bulletin reports and discusses the analyses of commercial feeding stuffs for 1910. Directions for calculating balanced rations, and a tabulated list of the wholesale cost of feeding stuffs are also given.

The Rational Use of Lime. By W. P. Brooks. The Distribution, Composition, and Cost of Lime. By H. D. Haskins and J. F. Merrill. (Bulletin 137, pp. 19.)

This bulletin discusses the possible effects of liming, how to determine what soils need liming, the relation of lime to crops and methods of application, sources of lime and present condition of trade in Massachusetts, different forms of lime, with analyses, and valuation of lime of different producers.

Meteorological Observations. By J. E. Ostrander and C. M. Damon. (Meteorological Bulletin 269, pp. 4.)

This is a summary for March, 1911.

Nevada Station, Reno, J. E. Stubbs, Director.

The Potato Eelworm. By S. B. Doten and P. Frandsen. (Bulletin 76, pp. 7, figs. 2.)

This is a brief account of this pest and of the disease caused by it. An Italian edition of the above has also been received.

Fixing Standard Weights and Measures. (Bulletin 77, pp. 11.)

This bulletin contains the text of the State law fixing standard weights and measures and providing for its enforcement.

New Hampshire Station, Durham, J. C. Kendall, Director.

Twenty-first and Twenty-second Reports, 1909–10. (Bulletin 151, pp. 72, fig. 1.)

In addition to the contents of another edition of this bulletin already noted, there is here given a meterological record for the year ended July, 1910.

Feeding Sheep and Lambs: Clover Hay *v.* Native Hay: Turnips *v.* Dry Ration. By T. R. Arkell. (Bulletin 152, pp. 3–19, figs. 6.)

This bulletin reviews the results of feeding tests during 1909–10 bearing on the relative feeding values for sheep of clover hay *v.* native New Hampshire hay, and of turnips in conjunction with grain and hay *v.* dry ration of grain and hay only.

Horticultural Information: How to Obtain It. By B. S. Pickett. (Circular 11, pp. 2–8.)

This circular points out the value of books, bulletins, and magazines, and the general agricultural press as sources of practical information for farmers and gives a list of standard horticultural books, bulletins, and magazines applicable to New Hampshire conditions.

The Purchase and Home-mixing of Fertilizers. By F. W. Taylor. (Circular 12, pp. 2–12.)

This circular explains fertilizer guarantees and high and low grade fertilizers, and gives directions for home-mixing of fertilizers, together with fertilizer formulas for different crops adapted to New Hampshire soils.

A Few Notes on Lime for Agricultural Purposes. By B. E. Curry. (Circular 13, pp. 4.)

Quicklime, hydrated lime, agricultural lime, ground limestone, marl, and air-slaked lime are defined in this circular, together with brief notes on their comparative values.

New Jersey Stations, New Brunswick, J. G. Lipman, Acting Director.

Spraying Experiments with Peaches. By M. A. Blake and A. J. Farley. (Bulletin 236, pp. 3–30, pls. 12.)

This bulletin describes peach scab (*Cladosporium carpophilum*), reports the results of tests of different spray solutions on peaches at Vineland during 1910, emphasizes the danger of burning the peach foliage in applying diluted sulphur solutions, and gives directions for the preparation and application of the self-boiled lime-sulphur mixture for the control of peach scab.

New York Cornell Station, Ithaca, L. H. Bailey, Director.

Cauliflower and Brussels Sprouts on Long Island. By L. B. Judson. (Bulletin 292, pp. 229–286, figs. 28.)

This bulletin gives detailed directions for propagating, fertilizing, packing, storing, and marketing these crops, describes their most important insect enemies and diseases with methods of control, and gives a statement of the operations and earnings of the Long Island Cauliflower Association for 1909, with a copy of the by-laws of the association. A bibliography of the subject is also included.

The Black Rot Disease of Grapes. By D. Reddick. (Bulletin 293, pp. 289–364, pls. 5, figs. 16.)

This bulletin discusses the origin, evolution, distribution, and life history of black rot, followed by the results of studies on the development of the ascus, pycnidia, spermogonia, pycnosclerotia, and conidia, together with infection experiments with pure cultures of the fungus, studies on its pathological histology, and tests of a number of spray solutions for the control of the disease. An extensive bibliography is also included.

A Heretofore Unnoted Benefit from the Growth of Legumes. By T. L. Lyon and J. A. Bizzell. (Bulletin 294, pp. 365–374.)

This bulletin reports the results of experiments bearing on the protein content of timothy grown alone and with alfalfa and red clover, the protein content of oats grown alone and with peas, the relation of alfalfa and of timothy to the nitrate content and to the nitrifying power of the soil, and the effect of lime on the protein content of alfalfa and in accompanying vegetation.

An Agricultural Survey: Townships of Ithaca, Dryden, Danby, and Lansing, Tompkins County, New York. By G. F. Warren, K. C. Livermore et al. (Bulletin 295, pp. 385–569, table 1, figs. 55.)

This bulletin briefly reviews the organization of the work and reports in detail the results of a survey of four townships in Tompkins County, N. Y., during 1908 to determine the best types of farming and the best methods of farm management for a given region.

Spraying for Black Rot of the Grape in a Dry Season. By D. Reddick, C. S. Wilson, and C. T. Gregory. (Bulletin 296, pp. 573–588, figs. 4.)

The results of spraying experiments with Bordeaux mixture, ammoniacal copper carbonate, commercial lime sulphur, and self-boiled lime sulphur conducted at Romulus, N. Y., during 1909–10 for the control of black rot and mildew of the grape are reported in this bulletin.

The Packing of Apples in Boxes. By C. S. Wilson. (Bulletin 298, pp. 681–693, figs. 10.)

This bulletin gives directions for the packing of apples in boxes, with suggestions on what varieties to box.

The Elimination of Tubercle Bacilli from Infected Cattle, and the Control of Bovine Tuberculosis and Infected Milk. By V. A. Moore. (Bulletin 299, pp. 697–714.)

This bulletin reviews the history and results of efforts to eradicate bovine tuberculosis, reports the results of examinations of milk and excreta from tuberculin-reacting cows for tubercle bacteria, and discusses the Bang and Ostertag methods of eliminating the disease. A copy of resolutions by the committee on diseases of the American Veterinary Medical Association for the control of bovine tuberculosis is appended.

NEW YORK STATE STATION, Geneva, W. H. Jordan, Director.

Newer Varieties of Strawberries, and Cultural Directions. By O. M. Taylor. (Bulletin 336, pp. 45–77, pl. 1, figs. 3.)

Tests and descriptions of varieties of strawberries grown at the station during 1909–10 are reported in this bulletin. Cultural directions are also given.

Potato-Spraying Experiments in 1910. By F. C. Stewart, G. T. French, and F. A. Sirrine. (Bulletin 328, pp. 115–151, pl. 1, dgm. 1.)

This bulletin reports the results of the ninth year's work in a 10-year series of potato-spraying tests with Bordeaux mixture and summarizes the results obtained in these series of spraying experiments prior to and including 1910. Notes are also given on some potato troubles in New York, with brief directions for spraying.

Spraying Fails to Kill New York Dandelions. By F. H. Hall. (Bulletin 335, popular edition, p. 1.)

This is a popular edition of Bulletin 335.

Growing and Testing Strawberries. By F. H. Hall. (Bulletin 336, popular edition, pp. 3–15, figs. 2.)

This is a popular edition of Bulletin 336.

How a Small City Improved Its Milk Supply. By F. H. Hall. (Bulletin 337, popular edition, pp. 3–11.)

This is a popular edition of Bulletin 337.

Dry Weather Test Potato Spraying. By F. H. Hall. (Bulletin 338, popular edition, pp. 3–8.)

This is a popular edition of Bulletin 338.

OHIO STATION, Wooster, C. E. Thorne, Director.

The Farm Grasses of Ohio. By C. G. Williams. (Bulletin 225, pp. 151–174, figs. 10.)

This bulletin reports the results of tests, of yield, cost of seeding per acre, and composition of timothy, blue grass, redtop, orchard grass, meadow fescue, tall fescue, brome grass, tall oat grass, perennial rye grass, and Italian rye grass, together with brief cultural notes.

The Wheat Joint Worm. By J. S. Houser. (Bulletin 226, pp. 175–201, figs. 19.)

This bulletin describes the life cycle of the insect, together with the nature and extent of its injuries to wheat in Ohio, and reports studies on its distribution as affected by straw, moisture content, cold, varieties, fertilizers, and time of seeding, together with field observations on infestation from straw stacks and stubble. Descriptions of the natural enemies and methods of control are also given.

Two Recent Important Cabbage Diseases of Ohio. By T. F. Manns. (Bulletin 228, pp. 255–297, figs. 26.)

This bulletin reviews the history and extent of cabbage culture in Ohio, describes the life histories and symptoms of "Fusarium wilt" and "Phoma wilt" of cabbage, with a statement of losses from these diseases in the State and methods of control. Information is also given on how to distinguish the different wilt and other cabbage troubles.

Treatment of Artificial Tree Plantations. By E. Secrest. (Circular 110, pp. 21, figs. 18.)

Brief suggestions on clean cultivation, mulching, and pruning of different trees are given in this circular.

The Management of Clover in Corn Belt Rotations. By J. A. Drake. (Circular 111, pp. 3–19, figs. 4.)

This circular reports the results of observations conducted in cooperation with the Bureau of Plant Industry of this department, relating to the farm practices in Ohio as bearing on clover rotations with wheat, cowpeas and soy beans, rye, oats, and corn, methods of seeding clover, top-dressing with manure, straw mulches, organic matter in the soil, and the use of lime in clover rotations.

Commercial Apple Orcharding in Ohio. By H. A. Gossard. (Circular 112, pp. 3–15, figs. 13.)

This circular gives an account of spraying experiments during 1909–10, on different orchards in the State, with brief notes on methods of spraying.

PENNSYLVANIA STATION, State College, T. F. Hunt, Director.

Poultry Experiments and Management. By T. I. Mairs and H. W. Jackson. (Bulletin 107, pp. 3–14, figs. 3.)

This bulletin contains a summary of Bulletin 87, and reports results of chick feeding experiments during 1909, together with notes on hatching, raising, feeding, and fattening chicks. Diarrhea and gapes are also briefly described with preventive measures.

Some Soiling Crops for Pennsylvania. By T. I. Mairs. (Bulletin 109, pp. 3–20, figs. 6.)

This bulletin describes different forage crops that have been used in soiling tests with dairy cows at the station and gives the results obtained with such of these crops as have been grown at the station, with brief notes on the influence of feeds used on the quantity and quality of milk.

RHODE ISLAND STATION, Kingston, H. J. Wheeler, Director.

Twenty-third Annual Report, 1910. (Annual Report, 1910, pp. 349–395+VIII.)

This is the administrative report by the director of the station containing notes on the year's work, a detailed report of the meteorologist, financial statement, and index to the station publications of the year.

SOUTH CAROLINA STATION, Clemson College, J. N. Harper, Director.

Analyses of Commercial Fertilizers. By M. B. Hardin et al. (Bulletin 154, pp. 56.)

This bulletin contains the text of the State fertilizer law as amended in March, 1909, gives explanations of terms, and reports analyses and valuation of 1,188 samples of commercial fertilizers collected in different parts of the State during 1909–10, with a brief discussion of the results.

Corn and Cotton Wireworm (*Horistonotus curiatus*). By W. A. Thomas. (Bulletin 155, pp. 3–10, pls. 7.)

This bulletin reports the results of preliminary tests in cooperation with the Bureau of Entomology of this Department of fertilizers, and of rye as a trap crop for the control of this pest, together with notes on its distribution in the State, its food plants, and mode of injury.

The Formation of the Sugars and Starch in the Sweet Potato. By T. E. Keitt. (Bulletin 156, pp. 3–14.)

Analyses of different varieties of sweet potatoes grown in 1908–9, with reference to their water, starch, glucose, and sucrose contents are reported. Meteorological data for the period covering the analyses are also reported and discussed in their bearing upon the composition of the potatoes.

South Dakota Station, Brookings, J. W. Wilson, Director.

Fattening Steers at Different Ages. By J. W. Wilson. (Bulletin 125, pp. 60–72, figs. 6.)

Results of steer feeding experiments at the station to determine the influence of age of steer on rate of gain, and the difference in production of pork for feed consumed with shoats following different aged steers are reported in this bulletin.

Alkali Soils. By C. Willis and J. V. Bopp. (Bulletin 126, pp. 75–95, fig. 1.)

This bulletin reports the results of tests of soluble salts in alkali soils from different parts of the State and suggests methods of reclaiming these soils.

Virginia Station, Blacksburg, S. W. Fletcher, Director.

Tomato Blight and Rot in Virginia. By H. S. Reed. (Bulletin 192, pp. 3–16, figs. 9.)

This is a report of a continuation of studies giving a description of different forms of blight and the results of experiments during 1910 with different soil treatments and sprays for their control at Christiansburg and Blacksburg, Va., with brief notes on resistant varieties and on point rot.

Washington Station, Pullman, R. W. Thatcher, Director.

Field Peas on a Palouse Wheat Farm. By G. Severance. (Popular Bulletin 36, pp. 4, fig. 1.)

Notes on successful results of trials with this crop on the station farm and at different points in the State are followed by brief cultural directions.

Commercial Fertilizers. By E. Fulmer. (Popular Bulletin 37, pp. 4.)

This is a popular bulletin giving a brief summary of Bulletin 98 of the station previously noted.

Corn Growing in Washington. By G. Severance. (Popular Bulletin 38, pp. 8, fig. 1.)

This bulletin points out the possibilities of, and the reasons for growing corn in Washington and gives a brief statement of the results of variety tests at the station, cooperative trials, and boys' corn-growing contest in 1909. Brief cultural directions and notes on methods of harvesting are also given.

Wisconsin Station, Madison, H. L. Russell, Director.

Crop Demonstration on State and County Farms. By C. P. Norgord. (Bulletin 208, pp. 3–30, figs. 12.)

The different lines of work introduced in Wisconsin by the farm demonstration department for the season 1909–10 are discussed in this bulletin.

The Prices of Farm Products. By H. C. Taylor. (Bulletin 209, pp. 3–30, figs. 14.)

This bulletin discusses the causes of fluctuation in prices of farm products and their application to farm management, and reports studies showing the relation between supply and price of eggs, butter, cheese, potatoes, corn, and hogs. Notes on sources of information on market conditions are also included.

1398 Issued August 28, 1911.

United States Department of Agriculture,

OFFICE OF EXPERIMENT STATIONS.

A. C. TRUE, Director.

LIST OF STATION PUBLICATIONS RECEIVED BY THE OFFICE OF EXPERIMENT STATIONS DURING JULY, 1911.

NOTE.—These publications are not distributed by the Department of Agriculture, but can usually be obtained, as far as the supply will permit, by applying to the stations issuing them.

ALABAMA TUSKEGEE STATION, Tuskegee Institute, G. W. Carver, Director.

Cotton Growing for Rural Schools. By G. W. Carver. (Bulletin 20, pp. 5–29, figs. 8.)

This bulletin discusses briefly and simply the more important features of cotton growing.

ARKANSAS STATION, Fayetteville, C. F. Adams, Director.

Brood Sows: Selection, Feeding, and Management. By C. Christopher. (Circular 10, pp. 4.)

This circular describes briefly an ideal brood sow, with methods of feeding and management.

Purchasing a Fertilizer. By R. C. Thompson. (Circular 11, pp. 4.)

Brief information on how to calculate the actual cost per pound of the different plant-food constituents of a fertilizer is given in this circular.

CALIFORNIA STATION, Berkeley, E. J. Wickson, Director.

Announcement of Farmers' Short Courses for 1911 at the University Farm, Davis, California. (Circular 64, pp. 16.)

This circular announces and briefly describes courses of studies for short-course students in different departments of the agricultural college of the University of California.

COLORADO STATION, Fort Collins, C. P. Gillette, Director.

The Deterioration of Manures Under Semiarid Conditions. By W. P. Headden and E. Douglass. (Bulletin 168, pp. 3–32.)

This bulletin reports the results of analyses by the station of sheep, cow, and miscellaneous manures of various ages to determine the rate of deterioration under semiarid conditions and what elements of plant food are most easily lost. Brief suggestions for preserving manure under Colorado conditions are also given.

Some Insects and Mites Attacking the Peach in Colorado. By G. P. Weldon. Two Plant Lice of the Peach. By C. P. Gillette and G. P. Weldon. (Bulletin 169, pp. 20, figs. 6.)

This bulletin describes the life cycle and injuries to fruit trees of the peach twig borer (*Anarsia lineatella*), and reports the results of spraying experiments during 1910 for its control, and for the control of the green and black peach aphis (*Myzus persicæ* and *Aphis persicæ*). Other peach insects of less importance in Colorado are also described with methods of control.

Thinning of the Winesap. By R. S. Herrick. (Bulletin 170, pp. 3–19, figs. 7.)

This bulletin reports the results of a thinning experiment with Winesap and Jonathan apples at Paonia, and gives directions for the thinning of apple trees with particular reference to the Winesap. Winter and frost injuries to peach and apple trees with preventive measures are also described.

The Colorado Raspberry Industry. By R. S. Herrick and E. R. Bennett. (Bulletin 171, pp. 3–16, figs. 4.)

This bulletin discusses briefly different species of the raspberry, and gives cultural directions and a list of varieties adapted to Colorado. Notes are also given on a few raspberry diseases and their methods of control.

Garden Notes, 1910. By E. R. Bennett. (Bulletin 172, pp. 3–16, figs. 3.)

This bulletin reviews the work at the station during 1910 in the growing of different truck crops, and gives notes on the initial work of a cabbage breeding experiment to test the fixation of type characteristics by selection. Hints for gardening in Colorado are also given.

Notes on a Dry Land Orchard. By J. E. Payne. (Bulletin 173, pp. 3–7, figs. 6.)

This bulletin describes briefly the development of the orchard at the Cheyenne Wells dry-land substation, with particular reference to root growth of apple trees and the planting of windbreaks.

Adobe as a Building Material for the Plains. By J. W. Adams. (Bulletin 174, pp. 3–8, figs. 5.)

This bulletin gives instructions for the use of adobe for building purposes, and a statement of the cost of adobe buildings erected at the Plains substation at Cheyenne Wells.

Georgia Station, Experiment, M. V. Calvin, Director.

Twenty-third Annual Report, 1910. (Annual Report, 1910, pp. 167–175.)

This contains a brief administrative report by the director and a financial statement for the year 1910.

Hawaii Federal Station, Honolulu, E. V. Wilcox, Special Agent in Charge.

The Assimilation of Nitrogen by Rice. By W. P. Kelley. (Bulletin 24, pp. 20.)

This bulletin reviews previous work by other investigators on the utilization by plants of ammonium and nitrate nitrogen, and reports the results of field, pot, and laboratory experiments with rice at the Hawaii Station to determine the relative action of different ammonia and nitrate fertilizers, the rate of denitrification of nitrate compounds, and the function of nitrates in the soil.

Indiana Station, Lafayette, A. Goss, Director.

Why Do Cream Tests Vary? Factors Affecting Richness of Cream. Relation of Butter Fat to Butter. By O. F. Hunziker. (Bulletin 150, pp. 27–55, figs. 15.)

This bulletin reports the results of experiments to test the richness of cream as affected by the richness, rate of inflow, and temperature of milk, speed of separator, and amount of water used in flushing the bowl. Notes on the care of cream on the farm are also given.

Commercial Fertilizers. By W. J. Jones, jr., et al. (Bulletin 151, pp. 59–163, figs. 2.)

This contains the text of the State fertilizer law and instructions to inspectors, compares the results of fertilizer sales in Indiana for different years, with notes on purchasing and home mixing of fertilizers, gives the results of inspection in the State for 1910, and summarizes the results for the preceding nine years.

Kansas Station, Manhattan, E. H. Webster, Director.

Grasses. By A. M. Ten Eyck. (Bulletin 175, pp. 291–394, figs. 40.)

This bulletin reports the results of experiments at the Kansas Station with a number of grasses to determine their adaptability to soil and climate, what crops produce well on sod land and the effect of such crops on succeeding crops, and to compare the productiveness and relative grazing qualities of different grasses. Detailed information is given on methods of seeding grasses, making hay, the production of grass seeds, care and management of grass lands, grass as a soil improver in crop rotations, and the special characteristics, culture, and uses of some of the more important grasses.

How to Grow Wheat in Kansas. By W. M. Jardine and L. E. Call. (Bulletin 176, pp. 3–28, figs. 4.)

This bulletin reports the results of experiments at the Kansas Station during 1910 to determine the value of different methods of preparing the seed bed for wheat. It describes an ideal seed bed, discusses summer fallowing, and gives information on varieties adapted to the State, methods of cleaning the seed, treating for smuts, and controlling the most important insects and troublesome weeds. Quality in wheat is also briefly discussed.

Massachusetts Station, Amherst, W. P. Brooks, Director.

Meteorological Observations. By J. E. Ostrander and R. N. Hallowell. (Meteorological Bulletin 270, pp. 4.)

This is a summary for June, 1911.

Minnesota Station, University Farm, St. Paul, A. F. Woods, Director.

Cutworms, Army Worms, and Grasshoppers. By F. L. Washburn. (Bulletin 123, pp. 65–84, pl. 1, figs. 14.)

This bulletin describes cutworms, army worms, and grasshoppers, and the nature of their injuries, with methods of control. A brief comparison is also given of the Minnesota grasshopper laws with those of North Dakota, of which a copy is given as revised in 1905. A statement of the contents of different issues of Minnesota Insect Life is appended.

Missouri College Station, Columbia, F. B. Mumford, Director.

Cooperation Among Fruit Growers. By W. H. Chandler. (Bulletin 97, pp. 3–58, figs. 6.)

This bulletin reviews the history of cooperation among fruit growers in America, describes the characteristic features of the more successful cooperative

organizations, and discusses the advantages and difficulties of the system with specific recommendations applicable to Missouri conditions. Copies of the constitution and by-laws of different associations in the United States are also given.

NEBRASKA STATION, Lincoln. E. A. Burnett, Director.

Growing Hogs in Nebraska. By W. P. Snyder. (Bulletin 121, pp. 5–40, figs. 5.)

Part 1 of this bulletin reports the results of several years' experiments at the Nebraska Station to determine the cost of producing a 50-pound pig and of keeping brood sows. Part 2 gives the results of several summers' feeding experiments at the station with pigs on alfalfa pasture and grain.

Cost of Growing Crops in Nebraska. By C. W. Pugsley. (Bulletin 122, pp. 3–12.)

This bulletin gives data collected during 1909–10 at the Nebraska Station on the cost of growing corn, wheat, oats, wild hay, clover, and alfalfa in the State.

NORTH CAROLINA COLLEGE STATION, West Raleigh, C. B. Williams, Director.

Feeding Experiments with Cows and Calves. By J. Michels. (Bulletin 213, pp. 89–97.)

This bulletin reports the results of feeding experiments at the station with dairy cows to test narrow and wide rations, and the relative feeding value of cottonseed and linseed meals. Notes are also given on linseed meal as a tonic for farm animals, the feeding value of cottonseed-meal rations for heifers and pregnant cows, and the effects of feeding calves on old pasteurized milk and skim milk soured with pure cultures of lactic-acid bacteria.

Two Important Cantaloup Pests. By R. I. Smith. (Bulletin 214, pp. 101–146, figs. 17.)

This bulletin reports the results of two seasons' investigations by the North Carolina Station of the habits, life cycle, and extent of injury of the pickle worm (*Diaphania nitidalis*) and of the melon worm (*D. hyalinata*). Their natural enemies and methods of control are also briefly described.

NORTH DAKOTA STATION, Agricultural College, J. H. Worst, Director.

The Potato and Its Culture. By J. H. Shepperd and O. O. Churchill. (Bulletin 90, pp. 83–126, figs. 12.)

This bulletin contains information on methods of selecting seed, planting, breeding, cultivating, fertilizing, harvesting, marketing, and storing potatoes, and their commercial uses in North Dakota, gives a copy of a potato score card, describes a plan of potato cellar, and gives a few of the more important potato insects and diseases with methods of control. Notes are also given on potato machinery.

Special Bulletin Food Department. (Special Food Bulletin 33, pp. 335–350.)

The results of examinations by the station of a number of patent medicines, food products, ice cream, and slaughterhouses are reported in this bulletin.

Twentieth Annual Report, 1910. (Annual Report, 1910, pp. 99, figs. 2.)

This contains a brief administrative report by the director, review of the year's work by the heads of the departments of chemistry, botany, horticulture, and veterinary medicine, and a financial statement for the year.

OKLAHOMA STATION, Stillwater, J. A. Wilson, Director.

The Twig Girdler. By C. E. Sanborn. (Bulletin 91, pp. 14, figs. 8.)

This bulletin describes the twig girdler (*Oncideres cingulata* and *texana*), the nature of its injuries with methods of control, based on the results of studies on its life cycle with particular reference to the suitability of decaying wood for development of the larvæ.

Spray Calendar. By A. L. Lovett. (Bulletin 92, pp. 3–16.)

This bulletin describes the preparation of different spray mixtures and their use under Oklahoma conditions in the control of the more common insects and diseases of different fruit and shade trees, grapes, vegetables, and truck crops. A list of dealers in the spray materials is appended.

Selecting an Orchard Site. By N. O. Booth. (Circular of Information 13, pp. 4, fig. 1.)

Brief directions for selecting an orchard site with particular reference to the character of the subsoil are given in this circular.

Protecting Trees from Rabbits. By D. C. Mooring. (Circular of Information 14, pp. 3, fig. 1.)

Notes on trapping, poisoning, and tree protection are given in this circular.

PENNSYLVANIA STATION, State College, T. F. Hunt, Director.

The Control of Insects and Diseases Affecting Horticultural Crops. By H. R. Fulton, W. J. Wright, and J. W. Gregg. (Bulletin 110, pp. 3–44.)

This bulletin describes the principal insect pests and diseases of different fruits and garden crops in Pennsylvania, and methods of preparing the more common insecticides and fungicides for their control.

PORTO RICO FEDERAL STATION, Mayaguez, D. W. May, Special Agent in Charge.

Annual Report, 1910. (Annual Report, 1910, pp. 44, pls. 4.)

This contains a summary of investigations at the station by the special agent in charge, a review of the year's work for the departments of the station by the physiologist, chemist, horticulturist, entomologist, pathologist, coffee expert, assistant horticulturist, and animal husbandman.

SOUTH CAROLINA STATION, Clemson College, J. N. Harper, Director.

The Apple-tree Tent-caterpillar. By A. F. Conradi. (Bulletin 153, pp. 8, fig. 1.)

This is a brief introductory report of investigations to determine the influence of temperature and moisture on the rapidity of development of the apple-tree tent-caterpillar (*Malacosoma americana*). Brief notes on methods of control are also given.

TEXAS STATION, College Station, B. Youngblood, Director.

Electrolysis of Humus Solutions. An Improved Method for the Estimation of Humus. By J. B. Rather. (Bulletin 139, pp. 15.)

This bulletin reports the results of studies of an adaptation of Cushman's and Hubbard's methods for electrolysis of feldspars to the separation of clay from humus extracts as compared with other accepted methods of humus determination. Tests of the use of ammonium carbonate to precipitate clay in humus are also reported.

WASHINGTON STATION, Pullman, R. W. Thatcher, Director.

Report of Investigations of Methods of Clearing Logged-off Lands in Western Washington. By H. W. Sparks. (Bulletin 101, pp. 3–28, figs. 5.)

This bulletin reports the results of experiments during 1909–10 by the station in cooperation with the Bureau of Plant Industry of this department to test the efficiency of fire as an agent in clearing logged-off land, with particular reference to the char-pit method.

Spraying Calendar for 1911. By R. K. Beattie and A. L. Melander. (Popular Bulletin 33, folio.)

Directions for spraying under Washington conditions are given.

The Soils of Washington. By R. W. Thatcher. (Popular Bulletin 34, pp. 4.)

This bulletin gives a brief comparative statement of the plant food in Washington soils and the amount removed by crops.

Killing Ground Squirrels. By W. D. Foster. (Popular Bulletin 35, pp. 4.)

This bulletin gives a brief report of the results of efforts at the station farm in the eradication of ground squirrels by means of steel traps. Notes are also given on the use of poisons.

○

Citrus Fruit Insects. By H. J. Quayle. (Bulletin 214, pp. 443–512, figs. 74.)

This bulletin gives the results of studies of the life cycle of 19 different species of citrus fruit insects which are likely to be of economic importance in California, together with their chief parasites and methods of control. Methods of fumigating are also briefly described, followed by a section of the State law on inspection and quarantine.

The California Insecticide Law. By C. W. Woodworth. (Circular 65, pp. 23.)

The text of the law is given and discussed in this circular.

IDAHO STATION, Moscow, W. L. Carlyle, Director.

Strawberry Culture in Idaho. By C. C. Vincent. (Bulletin 70, pp. 3–50, figs. 28.)

This bulletin describes 18 varieties of strawberries used in three years' variety tests by the Idaho station and gives directions for selecting, pollinating, planting, harvesting, and handling the crop.

IOWA STATION, Ames, C. F. Curtiss, Director.

The Chemical Nature of the Organic Nitrogen in the Soil. By S. L. Jodidi. (Research Bulletin 1, pp. 3–46, fig. 1.)

This bulletin reports the results of studies of the organic nitrogenous substances in soil of plats manured and cropped in different ways.

KANSAS STATION, Manhattan, E. H. Webster, Director.

Spraying the Apple Orchard. By A. Dickens and T. J. Headlee. (Bulletin 174, pp. 255–292, figs. 19.)

This bulletin reports the results of spraying experiments in cooperation with the Bureaus of Entomology and Plant Industry of this department on seven apple orchards in different parts of Kansas for the control of insects and fungus diseases, and gives suggestions to farmers on the use of sprays.

LOUISIANA STATION, Baton Rouge, W. R. Dodson, Director.

Bagasse Drying. By E. W. Kerr. (Bulletin 128, pp. 3–40, pl. 1, figs. 7.)

This bulletin describes methods of constructing a drier used in experiments here reported to test the practicability of drying bagasse for fuel by means of the waste smokestack heat.

Twenty-third Annual Report, 1910. By W. R. Dodson. (Pp. 5–27.)

This contains a review of the year's work for the sugar experiment station at Audubon Park, the State station at Baton Rouge, the North Louisiana station at Calhoun, and the rice experiment station at Crowley, together with a list of publications issued during the year and a financial statement.

MARYLAND STATION, College Park, H. J. Patterson, Director.

Bacteria and Animal Organisms Found in the Feces and Intestinal Mucosa of Healthy Chickens. By G. E. Gage. (Bulletin 153, pp. 201–226.)

This bulletin reports the results of studies to determine the bacteria and animal organisms that are found in the intestinal mucosa and feces of chickens of different ages. Methods of procedure and cultural studies are described.

Bee Keeping in Maryland. By T. B. Symons. (Bulletin 154, pp. 227–269, figs. 26.)

This bulletin reports the results of a preliminary study into the bee industry of the State conducted in cooperation with the Bureau of Entomology of this department, and gives information on the management of the apiary. A list of references to the literature on bee keeping is also given.

Massachusetts Station, Amherst, W. P. Brooks, Director.

Meteorological Observations. By J. E. Ostrander. (Bulletin 271, pp. 4.)

This is a summary for July, 1911.

Michigan Station, East Lansing, R. S. Shaw, Director.

Second Report of Grade Dairy Herd. By A. C. Anderson. (Bulletin 264, pp. 77–89, tables 3.)

This bulletin gives a record of the grade dairy herd of the station since 1906, showing the period of lactation, milk and butter production, feed consumed, and income per individual.

Organic Nitrogenous Compounds in Peat Soils. II. By C. S. Robinson. (Technical Bulletin 7, pp. 5–22, fig. 1.)

The results of continued investigations on the organic nitrogenous compounds in Michigan peat soils, reporting the isolation of leucin and isoleucin, are given in this bulletin.

Winter Vetch for a Cover Crop in Michigan Orchards. By H. J. Eustace. (Circular 13, pp. 2–4, figs. 4.)

The benefits from cover crops in orchards and vineyards are briefly pointed out in this circular, with particular reference to the value of winter vetch for such purposes.

Missouri College Station, Columbia, F. B. Mumford, Director.

The Plastered or Gurler Silo. By H. E. McNatt. (Circular 48, pp. 107–114, figs. 9.)

Brief directions for the construction of this silo are given.

The Reinforced Concrete Silo. By F. H. Demaree. (Circular 49, pp. 115–122, figs. 4.)

Brief directions for the construction of this silo are given.

New Jersey Station, New Brunswick, J. G. Lipman, Director.

Concentrated Feeding Stuffs. By C. S. Cathcart, V. J. Carberry, M. S. Macomber, and V. B. Hausknecht. (Bulletin 237, pp. 3–56.)

The results of inspection and analyses by the station of 650 samples of feeding stuffs are reported in this bulletin, with explanations.

New Hampshire Station. Durham, J. C. Kendall, Director.

The Apple Maggot or "Railroad Worm." By W. C. O'Kane. (Circular 14, pp. 2–4, figs. 2.)

Brief descriptive notes on the apple maggot and its control are given in this circular.

NEW YORK CORNELL STATION, Ithaca, L. H. Bailey, Director.

The Cabbage Aphis. By G. W. Herrick and J. W. Hungate. (Bulletin 300, pp. 717–746, figs. 12.)

On the basis of observations at the station this bulletin describes the habits and injuries, food plants, life cycle, and natural enemies of the cabbage aphis, with methods of control. References to the literature are cited.

Sweet Pea Studies. By J. Craig and A. C. Beal. (Bulletin 301, pp. 749–764, pl. 1.)

This bulletin reports the results of studies on the blossoming period and type characteristics of different varieties of the sweet pea, conducted at the Cornell station in cooperation with the National Sweet Pea Society of America. The results of forcing tests and color classification of varieties are also given.

Notes from the Agricultural Survey in Tompkins County. By G. F. Warren and K. C. Livermore. (Bulletin 302, pp. 767–772.)

This is a popular edition of Bulletin 295.

NEW YORK STATE STATION, Geneva, W. H. Jordan, Director.

Is It Necessary to Fertilize an Apple Orchard? By U. P. Hedrick. (Bulletin 339, pp. 153–195, pls. 4, figs. 7.)

This bulletin reports the results of 15 years' experiments at the station to determine the necessity of fertilizing apple orchards not in sod.

Does the Apple Orchard Need Fertilizers? By F. H. Hall. (Bulletin 339, popular edition, pp. 12.)

This is a popular edition of Bulletin 339.

NORTH CAROLINA COLLEGE STATION, West Raleigh, C. B. Williams, Director.

Cottonseed Meal Feeding Experiments with Mules and Horses. By R. S. Curtis. (Bulletin 215, pp. 151–169.)

This bulletin reports the results of feeding experiments with mules to determine the value of cottonseed used in rations for work animals, the best forms and combinations of the feed, and its effect on health, condition, and working capacity of the animals.

Feeding Cottonseed Meal to Draft Animals. By R. S. Curtis. (Bulletin 216, pp. 177–186.)

This bulletin gives a compilation of data based on the work of different stations and practical experience of farmers on the composition and feeding value for horses and mules of cottonseed meal, with brief directions for its use, and some cottonseed meal rations.

Feeding Experiments with Beef Cattle. By R. S. Curtis. (Bulletin 218, pp. 27–44, figs. 10.)

This bulletin reports the results of two years' steer-feeding experiments at the station to determine the difference in feeding value of corn stover, corn silage, and cottonseed hulls when fed with cottonseed meal.

Feeding and Management of Beef Cattle. By R. S. Curtis. (Bulletin 219, pp. 49–68, figs. 11.)

This bulletin reviews the present status of the beef-cattle industry in North Carolina and discusses the more important factors of profitable beef production in the State and methods of feeding and management. Notes on scours, thrush or foul-of-the-foot, and effects of overfeeding with cottonseed meal are also given.

NORTH DAKOTA STATION, Agricultural College, J. H. Worst, Director.

Dairy Herd Records. By J. H. Shepperd and W. B. Richards. (Bulletin 91, pp. 128–168, pls. 6.)

This bulletin contains the records for both the calendar year and the lactation period of the college herd from 1904–1910, and discusses these in relation to feed consumed and food production. A photograph and description of each individual cow is also given.

Paints: Their Service Condition. By E. F. Ladd and E. E. Ware. (Bulletin 92, pp. 172–202, pls. 16.)

The condition of different paints which have been under test at the station since 1906 are reported in this bulletin for the fall inspection of 1910.

Wheat Investigations. By E. F. Ladd and C. H. Bailey. (Bulletin 93, pp. 204–253, figs. 5.)

This bulletin reports a continuation of wheat investigations of the station in cooperation with the Bureau of Plant Industry of this department, including the results of milling, baking, and chemical tests of different varieties of hard spring and durum wheats grown during 1910 in different parts of North Dakota.

Special Bulletin Food Department. (Special Bulletin 34, pp. 351–366.)

This bulletin contains the text of the snuff law of North Dakota, and reports the results of an examination of patent medicines, water, food products, brandies, and cold-storage products. The requirements of the law for mustard, lard, net weight and measures, and bread are also stated.

OHIO STATION, Wooster, C. E. Thorne, Director.

Farm Equipment. By L. W. Ellis. (Bulletin 227, pp. 203–253, figs. 4.)

The results of a study of the relationship of land, buildings, equipment, stock, machinery, cropping systems, and working capital of different farm types of Ohio are reported in this bulletin, prepared in cooperation with the Bureau of Plant Industry of this department.

The Fusarium Blight and Dry Rot of the Potato. By T. F. Manns. (Bulletin 229, pp. 299–336, figs. 15.)

The Fusarium blight of the potato and the nature and extent of its injuries in Ohio during 1909–10, with methods of control, are described in this bulletin, together with the results of studies on the condition of seed potatoes in Ohio with regard to the disease factors which influence its dissemination, and field experiments for its control.

Wheat Experiments. By C. G. Williams and F. A. Welton. (Bulletin 231, pp. 22, figs. 2.)

This bulletin summarizes the results of three years' field variety tests of wheat at the Ohio station to study the relation of rate and time of seeding, the size and weight of kernel to yield, the effect of different rotations, and the quality of wheat as determined by the station's milling and baking tests.

RHODE ISLAND STATION, Kingston, H. J. Wheeler, Director.

Protein Concentrates for Winter Chickens. By B. L. Hartwell and W. F. Kirkpatrick. (Bulletin 145, pp. 3–40.)

The results of chick-feeding experiments at the Rhode Island station to show the need of ash constituents in grain rations for chicks and to test the efficiency of different protein concentrates for promoting rapid growth are reported in this bulletin.

South Carolina Station, Clemson College, J. N. Harper, Director.

A Chemical Study of Certain Sandhill Soils of South Carolina. By T. E. Keitt. (Bulletin 159, pp. 3–24, fig. 1.)

The results of analyses of Sandhill soils are reported in this bulletin and correlated with past culture and fertilizer practices.

Texas Station, College Station, B. Youngblood, Director.

Alfalfa in Northwest Texas. By A. B. Conner. (Bulletin 137, pp. 2–17, pl. 1, fig. 1.)

This bulletin describes the surface features and soil of northwest Texas and gives information on the preparation of the land, seeding and growing alfalfa for hay, seed, and pasture, based on the results of five years' experimental work and observations in growing alfalfa in that region in cooperation with the Bureau of Plant Industry of this department.

Cooperative Fertilizer Experiments with Corn, Cotton, Rice, Cauliflower, Peanuts, Onions, Tomatoes, and Potatoes, 1908–9–10. By G. S. Fraps. (Bulletin 138, pp. 5–71.)

This bulletin reports the results of cooperative experiments conducted since 1908 with nitrogen, phosphoric acid, and potash fertilizers on different crops in Texas soils to ascertain what fertilizers were adapted to Texas conditions, and the relation between chemical composition, crops, and field experiments.

Washington Station, Pullman, R. W. Thatcher, Director.

Field Pea Production in Washington. By M. W. Evans. (Bulletin 99, pp. 4–22, figs. 4.)

This bulletin reports the results of field experiments conducted in cooperation with the Bureau of Plant Industry of this department to determine the possibilities of growing field peas as a forage crop in Washington, and describes different varieties, their feeding value, and methods of culture and harvesting. Notes on insect enemies are also given.

Wheat and Flour Investigations. By R. W. Thatcher, Geo. A. Olson, and W. L. Hadlock. (Bulletin 100, pp. 3–52, figs. 2.)

There are given in parts 1, 2, and 3, respectively, of this bulletin the results of analyses of Washington wheats grown during 1908 and 1909, a review of the entire five years' investigations on the composition and milling qualities of Washington wheats, and a description of a simple apparatus for determining the milling qualities of wheats.

Wisconsin Station, Madison, H. L. Russell, Director.

How to Use the Babcock Test. By J. L. Sammis. (Circular 27, pp. 26, figs. 19.)

Directions to farmers for the use of the Babcock test are given in this circular.

○

1405 Issued October 28, 1911.

United States Department of Agriculture,

OFFICE OF EXPERIMENT STATIONS.

A. C. TRUE, Director.

LIST OF STATION PUBLICATIONS RECEIVED BY THE OFFICE OF EXPERIMENT STATIONS DURING SEPTEMBER, 1911.

NOTE.—The station publications noted in this list are not distributed by the Department of Agriculture, but can usually be obtained, as far as the supply will permit, by applying to the stations issuing them.

ALASKA STATIONS, Sitka, C. C. Georgeson, Special Agent in Charge.

Annual Report, 1910. (Annual Report, 1910, pp. 9–85, pls. 13.)

This contains a review by the special agent in charge, and by the station superintendents, of the season's work with fruits, vegetables, grains and grasses, and live stock at the different Alaska stations and the preliminary examination of lands in Tanana Valley, besides climatological data for Alaska.

CALIFORNIA STATION, Berkeley, E. J. Wickson, Director.

Butter Scoring Contest, 1910. By L. M. Davis. (Circular 60, pp. 2–27, figs. 2.)

This circular summarizes the results of the butter scoring contest for 1910 by the university farm at Davis. The Babcock test for butter fat in butter is briefly described.

University Farm School. (Circular 61, pp. 3–19, figs. 7.)

This circular announces and describes the courses of study for 1911–12 of the university farm school at Davis, Cal.

The School Garden in the Course of Study. By E. B. Babcock and C. A. Stebbins. (Circular 62, pp. 12.)

This circular outlines courses of study in garden and soil work for each of the eight public school grades. Sample pages of the Junior Agriculturist, published by the College of Agriculture of California for grammar-grade pupils are also given.

How to Make an Observation Hive. By L. J. Nickels. (Circular 63, pp. 13, figs. 5.)

Directions are given for the construction of a hive intended for nature study. Notes on the care of bees and a bibliography of the subject are also added.

Development of Secondary School Agriculture in California. By E. B. Babcock, C. J. Booth, H. Lee, and F. H. Bolster. (Circular 67, pp. 3–53.)

This is a review of what has been done in agricultural education in a number of high schools in California.

COLORADO STATION, Fort Collins, C. P. Gillette, Director.

The Fixation of Nitrogen in Some Colorado Soils. By W. P. Headden. (Bulletin 178, pp. 3–96, pls. 6.)

This bulletin reports a continuation of investigations on the injurious nitrates in Colorado soils, giving consideration to analyses of the water-soluble portion of a number of soils of areas where "barren spots" occur, and to tests of the rate of nitrogen fixation and vitrification.

CONNECTICUT STATE STATION, New Haven, E. H. Jenkins, Director.

Tests of Garden and Field Seeds, 1910. (Biennial Report, 1909–10, pt. 12, pp. 805–842 + V – XX.)

This is the conclusion of the station's biennial report ending October 31, 1910, and contains the results of garden and field seed tests, an index to the report, and financial statements for 1909–10.

HAWAII FEDERAL STATION, Honolulu, E. V. Wilcox, Special Agent in Charge.

Leguminous Crops for Hawaii. By F. G. Krauss. (Bulletin 23, pp. 31, pls. 8.)

This bulletin describes and gives practical suggestions for the growing of alfalfa, cowpeas, jack beans, pigeon peas, soy beans, and velvet beans under Hawaiian conditions. A table showing the composition of these plants, Hawaiian grown, is appended.

INDIANA STATION, Lafayette, A. Goss, Director.

What Purdue Is Doing for Indiana Agriculture. By A. Goss. (Circular 28, pp. 3–52, figs. 45.)

This is a popular review of the work of the different departments of the Indiana College of Agriculture and experiment station.

KENTUCKY STATION, Lexington, M. A. Scovell, Director.

Commercial Fertilizers. By M. A. Scovell and H. E. Curtis. (Bulletin 152, pp. 195–322.)

The results of analyses by the station of different brands of fertilizers registered during 1910 are reported in this bulletin.

MAINE STATION, Orono, C. D. Woods, Director.

Two Species of Macrosiphum. By Edith M. Patch. (Bulletin 190, pp. 81–92, figs. 14.)

The results of studies at the Maine station to determine the specific characters and host-plant relationship of *Macrosiphum destructor* and *M. solanifolii* are reported.

Method for Determining Weight of Parts of Eggs. By Maynie R. Curtis. (Bulletin 191, pp. 93–112, figs. 3.)

The results of a study of a method of determining without loss the weight of the several parts of the hen's egg are reported in this bulletin.

Official Inspections. (Official Inspections 32, pp. 65–76.)

The changes in and chief requirements of the seeds, fertilizer, feeding stuffs, foods, drugs, fungicide, and insecticide laws of Maine are pointed out, and directions for sampling are given.

Official Inspections. (Official Inspections 33, pp. 77–108.)

This explains the requirements of the State fertilizer law and reports the results of inspection of fertilizer samples collected for the station during the spring of 1911.

Station Publications. By C. D. Woods. (Document 410, p. 1.)

This explains the station's policy in distributing its publications to the residents and nonresidents of the State.

MASSACHUSETTS STATION, Amherst, W. P. Brooks, Director.

Meteorological Observations. By J. E. Ostrander and R. N. Hallowell. (Bulletin 272, pp. 4.)

This is a summary for August, 1911.

MICHIGAN STATION, East Lansing, R. S. Shaw, Director.

Lime for Agricultural Purposes. By A. J. Patten and J. A. Jeffery. (Circular 11, pp. 79–82.)

This circular gives a brief compilation of information on the action, forms, and methods of application of lime.

Tuberculosis in Fowls. (Circular 12, pp. 83–86, figs. 2.)

Attention is called to tuberculosis and its symptoms as a poultry disease.

MONTANA STATION, Bozeman, F. B. Linfield, Director.

Eighth Annual Report of the State Entomologist, 1910. By R. A. Cooley. (Bulletin 82, pp. 137–144.)

This contains a statement of the work and needs along entomological lines in Montana.

Dry Farming Investigations in Montana. By A. Atkinson and J. B. Nelson. (Bulletin 83, pp. 153–203, figs. 21.)

This bulletin summarizes the results of six years' dry farming investigations in Montana, including the rainfall records, tests of varieties of grain for yield and profit, continued versus alternate cropping and fallowing, first season's versus second season's planting, spring versus fall plowing, rates of seeding, spring harrowing versus not harrowing fall-sown grains, and intertillage of grain during growth.

Grain Investigations with Wheat, Oats, and Barley. By A. Atkinson. (Bulletin 84, pp. 209–230, figs. 3.)

This bulletin reports the results of five years' tests at the station with wheat, oats, and barley to study the best adapted varieties, amount of seed to use per acre under irrigation, and the time of seeding under Montana conditions.

Tick Control in Relation to the Rocky Mountain Spotted Fever. By R. A. Cooley. (Bulletin 85, pp. 3–29.)

This bulletin reviews investigations by others on the transmission of Rocky Mountain spotted fever by ticks, reports the results of studies during 1910 by the Montana station in cooperation with the Bureau of Entomology and the Biological Survey of this department on the life cycle, and host relationships of different species of ticks, and suggests methods of eradication.

Seventeenth Annual Report, 1910. (Annual Report, 1910, pp. 235–261, figs. 2.)

This contains the director's administrative report reviewing the year's work of the station departments, a financial statement, list of publications, and monthly meteorological summaries for the year. An index to the publications is also included.

NEBRASKA STATION, Lincoln, E. A. Burnett, Director.

Twenty-fourth Annual Report, 1910. (Annual Report, 1910, pp. V–XXXIX + 3–208, figs. 51.)

This contains the director's summary report and reports of the substations at North Platte, Valentine, and Mitchell, and a financial statement, besides an appendix of scientific papers on a new sawfly enemy of the bull pine in Nebraska; spraying for the melon aphis; genetic correlation and spurious allelomorphism in maize; the relation of climatic factors to the water used by the corn plant; correlation studies of corn; a comparative study of the bacterial content of soils from fields of corn and alfalfa; and the effect of food on the strength, size, and composition of the bones of hogs.

NEVADA STATION, Reno, J. E. Stubbs, Director.

Annual Report of the Board of Control, the Director, and the Members of the Station Staff, 1910. (Bulletin 73½, pp. 58.)

This contains the reports of the director and of the different departments reviewing the year's work of the station, and gives a statement of expenditures.

NEW HAMPSHIRE STATION, Durham, J. C. Kendall, Director.

Fruit Bud Formation. By B. S. Pickett. (Bulletin 153, pp. 4–36, figs. 9.)

The results of three seasons' investigations bearing on fruit-bud formation of the apple as affected by methods of cultivation, fertilization, and cover cropping are tabulated and summarized in this bulletin.

NEW JERSEY STATION, New Brunswick, J. G. Lipman, Director.

The F_1, Heredity of Size, Shape, and Number in Tomato Leaves. I, Seedlings. By B. H. A. Groth. (Bulletin 238, pp. 3–38, pls. 9, figs. 5.)

This bulletin describes the grosser distinguishing, foliage characters of 10 types of tomatoes and reports the results of investigations of the station on the heredity of such characters in seedlings of the first generation of crosses.

The F_1, Heredity of Size, Shape, and Number in Tomato Leaves. II, Mature Plants. By B. H. A. Groth. (Bulletin 239, pp. 3–12, pls. 9.)

This bulletin is a companion to Bulletin 238 and gives results of investigations at the station on the heredity of foliage characters in the mature plants in the first generation of tomato crosses.

NEW MEXICO STATION, Agricultural College, L. Foster, Director.

Peach Experiments, 1906–1910. By F. Garciá and J. E. Mundell. (Bulletin 76, pp. 4–42, figs. 10.)

This bulletin reports the results of experiments with peaches at the station to study methods of cultivating and irrigating; age of bearing, yield, and length of shipping seasons; effect of low heading of trees; new versus old varieties; root development; and hardiness of buds and blossoms. Mechanical and chemical analyses of the orchard soils are also reported.

Tests of Centrifugal Pumps. By B. P. Fleming and J. B. Stoneking. (Bulletin 77, pp. 3–81, figs. 34.)

This bulletin reports the results of tests of centrifugal pumps to secure data as to their characteristics and as to the efficiency to be obtained under the most favorable conditions of operation.

Cacti in New Mexico. By E. O. Wooton. (Bulletin 78, pp. 3–70, pls. 18.)

This bulletin describes a number of genera and species of cacti of New Mexico with notes on their geographical distribution and climatic limitations, reports the results of trials in growing cacti in different parts of the State, and gives a compilation of information on their value as food for man and animal, and for decoration purposes.

Alfalfa and Corn for Fattening Lambs. By H. H. Simpson. (Bulletin 79, pp. 3–18, figs. 8.)

The results of feeding experiments with lambs at the station during 1909 are reported to compare the cost of gain and feeding value of varying amounts of corn with alfalfa.

NEW YORK STATE STATION, Geneva, W. H. Jordan, Director.

A Contribution to the Life History, Parasitism, and Biology of *Botryosphæria ribis*. By J. G. Grossenbacher and B. M. Duggar. (Technical Bulletin 18, pp. 114–190, pls. 12, figs. 1.)

This bulletin reports the results of several seasons' investigations at the station on the life cycle of *B. ribis* and the disease of currants induced by it, and gives practical suggestions for its control.

NORTH CAROLINA COLLEGE STATION, West Raleigh, C. B. Williams, Director.

A Serious Lettuce Disease. By F. L. Stevens. (Bulletin 217, pp. 7–21, figs. 8.)

This bulletin reviews the history of lettuce sclerotiniose in the country, describes the life cycle of the causal fungus (*Sclerotinia libertiana*), and reports the results of experiments on the eradication of the disease by removing the infected plants. Brief directions for treatment of sick beds are also given.

Care and Management of the Dairy Herd. By J. C. McNutt. (Bulletin 220, pp. 73–84, figs. 9.)

Suggestions for selecting, feeding, and managing the dairy cow, bull, and calf and as to the age to breed heifers are given in this bulletin.

Thirty-third Annual Report, 1910. By C. B. Williams. (Annual Report, 1910, pp. 5–206, figs. 102.)

This contains a review of the work of the different departments of the station by the director, reports of the chemist, biologist, poultryman, horticulturist, animal husbandman, dairy husbandman, entomologist, and veterinarian, a financial statement, and scientific papers on studies in soil bacteriology, three interesting species of claviceps, modification of the diphenylamine test for nitrous and nitric acids, notes of plant diseases occurring in North Carolina, and some breeding experiments in progress, besides Press Bulletin No. 21 and Bulletins 205–208, inclusive.

NORTH DAKOTA STATION, Agricultural College, J. H. Worst, Director.

Special Bulletin Food Department. (Special Food Bulletin 32, pp. 319–334.)

This bulletin contains the text of the lard, net weight and measure, and bread laws, analyses of patent medicines and food products, followed by a discussion on the uniformity of State and national food laws. Notes on the use of bleached flour in England, and the effect on composition of oranges when picked green, are also given.

Special Bulletin Food Department. (Special Food Bulletin 35, pp. 367–396.)

Explanations regarding the sale of different products in the State are followed by results of examination of spirits of peppermint, bakeries, grocery stores, slaughterhouses, food products, and flaxseed screenings. The results of a feeding experiment with flax screenings to test its poisonous character are also included.

Oregon Station, Corvallis, J. Withycombe, Director.

Preliminary Frost Fighting Studies in the Rogue River Valley. By C. I. Lewis and F. R. Brown. (Bulletin 110, pp. 3–62, figs. 19.)

This bulletin reports the results of experiments by fruit growers and by the station during 1909–1911 in a number of orchards to test the possibilities of protecting orchards against frosts by artificial heat, including studies on the efficiency of different lighters and heaters.

Pennsylvania Station, State College, T. F. Hunt, Director.

Annual Report, 1910. (Annual Report, 1910, pp. 632, pls. 67, figs. 2.)

This contains a financial statement, review of the year's work by the director, and detailed reports and special papers on the different phases of the work of the station in the departments of agronomy, animal husbandry, dairy husbandry, experimental agriculture, experimental agricultural chemistry, experimental horticulture, forestry, horticulture, and the Institute of Animal Nutrition. Meteorological records for 1909 are appended.

South Dakota Station, Brookings, J. W. Wilson, Director.

Breeding and Feeding Sheep. By J. W. Wilson. (Bulletin 127, pp. 99–120, figs. 13.)

The results of experiments at the station to ascertain which of six breeds of sheep is the best for crossing on the western-bred ewe, both wool and mutton being considered, are reported in this bulletin. Notes on tapeworms and treatment for them are also given.

Progress in Wheat Investigations. By C. Willis and W. L. Burlison. (Bulletin 128, pp. 123–144, figs. 5.)

This bulletin gives information on methods of growing wheat in South Dakota, tabulates the results of ten years' variety tests, and describes some varieties tested by the station. Notes on loose and stinking smuts of wheat with methods of treatment are also given.

Growing Pedigreed Sugar Beet Seed in South Dakota. By J. H. Shepard. (Bulletin 129, pp. 147–160.)

This is a progress report of the work on sugar beets at the station in cooperation with the Bureau of Plant Industry of this department.

Some New Fruits. By N. E. Hansen. (Bulletin 130, pp. 163–200, figs. 13.)

This bulletin describes and gives the names of a number of new varieties and states the practical value of hybrid plums propagated at the station. Notes on the work with pure native plums and with native sand cherries are also given.

Scabies (Mange) in Cattle. By E. L. Moore. (Bulletin 131, pp. 203–216, figs. 3.)

This bulletin describes cattle scabies and summarizes the results of tests conducted in cooperation with the Bureau of Animal Industry of this department on the efficiency of coal-tar dips for its control General directions for dipping are also given.

Virginia Station, Blacksburg, S. W. Fletcher, Director.

Cabbage Club Root in Virginia. By H. S. Reed. (Bulletin 191, pp. 3–12, figs. 5.)

The symptoms, appearance, cause, and means of spreading of this disease are described, together with the results of field experiments during 1909 for its control.

Grass Culture. By T. B. Hutcheson. (Bulletin 193, pp. 3–23, figs. 11.)

This bulletin reports the results of several years' tests in different parts of the State, of grass mixtures for hay and pasture, time of seeding, and fertilizing for grass. Directions for preparing the seed bed and for harvesting the crop are also given.

Annual Reports, 1909 and 1910. (Annual Report, 1909–1910, pp. 3–232, pl. 1, figs. 186.)

This contains the reports of the director, horticulturist, chemist, agronomist, dairy husbandman, plant pathologist, animal husbandman, assistant bacteriologist, tobacco and tobacco insect investigations, and a financial statement. Special articles are given on contribution to the study of phosphoric acid in soils and fertilizers; bacteria in milk produced under varying conditions; *Heterosporium variabile*, its relation to *Spinacia oleracea*, and environmental factors; plant diseases in Virginia in the years 1909 and 1910; use of muslin screens to keep corn from crossing; the infection of root-hairs by means of *Bacillus radicicola;* the fixation of nitrogen by means of *Bacillus radicicola* without the presence of a legume; effect of fresh and well-rotted manure on plant growth; fruit-bud formation and development; the application of meteorological data in the study of physiological constants; pollination of Bartlett and Kieffer pears; and meteorological notes.

Wisconsin Station, Madison, H. L. Russell, Director.

The Progress of the Dairy Industry in Wisconsin. By H. C. Taylor and C. E. Lee. (Bulletin 210, pp. 3–30, pl. 1, figs. 18.)

This bulletin gives the results of a study by the Wisconsin station of the basis of the dairy industry in the State, and the influence of various factors on its development, and includes statistics on number of milch cows, cheese factories, creameries, and skimming stations, and butter and cheese production per county in the State.

Concrete Silo Construction. By C. A. Ocock and F. M. White. (Bulletin 214, pp. 3–31, figs. 18.)

This bulletin points out the distinguishing features of a good silo and gives directions for constructing concrete silos. Notes on the stave and Gurler silos and care of silos are added.

Standard and Undesirable Commercial Types of Potatoes. By J. C. Milward. (Circular of Information 26, charts 2.)

This circular illustrates in chart form standard and undesirable commercial types of potatoes, standard early and late varieties, and gives notes on community potato growing.

○

1416 Issued December 9, 1911.

United States Department of Agriculture,

OFFICE OF EXPERIMENT STATIONS.

A. C. TRUE, Director.

LIST OF STATION PUBLICATIONS RECEIVED BY THE OFFICE OF EXPERIMENT STATIONS DURING OCTOBER, 1911.

NOTE.—The station publications noted in this list are not distributed by the Department of Agriculture, but can usually be obtained, as far as the supply will permit, by applying to the stations issuing them.

ALABAMA COLLEGE STATION, Auburn, J. F. Duggar, Director.

The Satsuma Orange. By P. F. Williams. (Bulletin 157, pp. 145–174, figs. 8.)

This bulletin describes the Satsuma orange and points out its adaptability to the soils and climate of Mobile and Baldwin Counties, Ala., with cultural directions. Diseases and insects that may become troublesome and methods for their control are also briefly described.

ALABAMA TUSKEGEE STATION, Tuskegee Institute, G. W. Carver, Director.

White and Color Washing with Native Clays from Macon County, Ala. By G. W. Carver. (Bulletin 21, pp. 4.)

Brief directions for preparing and applying clay washes are given.

CALIFORNIA STATION, Berkeley, E. J. Wickson, Director.

The House Fly in Its Relation to Public Health. By W. B. Herms. (Bulletin 215, pp. 511–548, figs. 16.)

This bulletin describes different species of flies and the life cycle of the house fly, reports the results of observations on the distribution of sexes and relative abundance of the house fly and related species, and discusses the relation of the house fly to the transmission of different diseases with methods of control of both the larva and adult fly, including notes on the organization of a community-wide campaign. A bibliography is also added.

A Progress Report upon Soil and Climatic Factors Influencing the Composition of Wheat. By G. W. Shaw and E. H. Walters. (Bulletin 216, pp. 549–574, fig. 1.)

This bulletin summarizes the results of investigations by others on the subject and reports the results of experiments by the California station in cooperation with this department to determine the influence of climate and of composition of the soil on the composition of wheat from the same original seed. The plants were grown in California, Kansas, and Virginia and on plats of soil that had been transferred from each of these to each of the other States.

Insecticides and Insect Control. By H. J. Quayle. (Circular 66, pp. 7.)

Directions for the preparation and use of different insecticides are given.

Salt in Cyanids. By G. E. Colby and G. P. Gray. (Circular 72, pp. 3.)

This circular gives the results of tests of the effect of varying proportions of salt in commercial cyanids upon the production of hydrocyanic-acid gas.

Pure Insecticides. By C. W. Woodworth. (Circular 73, pp. 2.)

A plan is suggested for a more accurate specification under the California insecticide law of high-grade insecticides and fungicides.

COLORADO STATION, Fort Collins, C. P. Gillette, Director.

Hold-over Blight in the Pear. By W. G. Sackett. (Bulletin 177, pp. 2–8, figs. 2.)

The results of three seasons' investigations to determine whether the microorganism which produces fire blight (*Bacillus amylovorus*) can survive the winter in the diseased limbs and twigs under Colorado conditions are reported.

Bacteriological Studies of the Fixation of Nitrogen in Certain Colorado Soils. By W. G. Sackett. (Bulletin 179, pp. 3–42, pls. 2, figs. 5.)

This bulletin reports the results of investigations to determine the source of excessive nitrates in some Colorado soils, including the study of nitrogen fixation in nutrient solutions and in soils, and as affected by soil moisture, as well as studies on the nature and cause of the characteristic brown color of the niter spots.

GEORGIA STATION, Experiment, M. V. Calvin, Director.

The Influence of Stall Manure upon the Bacterial Flora of the Soil. By J. C. Temple. (Bulletin 95, pp. 5–35.)

This bulletin reports the results of investigations to determine the influence of added cow manure on the number of bacteria, rate of ammonification, and nitrification in the soil. References to the literature on the subject are added.

HAWAII FEDERAL STATION, Honolulu, E. V. Wilcox, Special Agent in Charge.

Brief Instructions for Farm Butter Makers. By F. A. Clowes. (Press Bulletin 31, pp. 10, figs 4.)

Brief directions are given for the production of farm butter under Hawaiian conditions.

ILLINOIS STATION, Urbana, E. Davenport, Director.

Feeding Farm Work Horses. By R. C. Obrecht. (Bulletin 150, pp. 432–461, figs. 10.)

This bulletin reports the results of feeding experiments with 10 teams of farm horses at work to compare clover, timothy, and alfalfa hay; corn and alfalfa with other grain mixtures and alfalfa; ground grain with whole grain; and the effect of feeding mixed ground grain with chaffed clover hay.

Four Systems of Dairy Farming and the Profit on Each. By W. J. Fraser and R. E. Brand. (Circular 151, pp. 24.)

This circular describes and compares the year's returns from four systems of cropping for dairy farms in Illinois.

Feeding Dairy Cows. By C. C. Hayden. (Circular 152, pp. 31.)

Tables and directions for the use of farmers in preparing rations for dairy cows are given in this circular. Notes on soiling crops are also included.

Additional Facts in Swine Feeding, with Special Reference to Developing Swine for Breeding Purposes. By W. Dietrich. (Circular 153, pp. 4.)

The principal differences between the feeding of breeding and of market pigs as determined by the Illinois station are briefly pointed out, and an approximate ration for breeding pigs is suggested.

INDIANA STATION, Lafayette, A. Goss, Director.

Commercial Feeding Stuffs. By W. J. Jones, jr., F. D. Fuller, and C. Cutler. (Bulletin 152, pp. 167–403, fig. 1.)

A summary of the chief requirements of the Indiana commercial feeding stuffs law is followed by rulings and cases under the law, sampling instructions, and the results of analyses of 2,764 samples of feeding stuffs collected during 1910. A table showing the composition of some materials used as adulterants is also included.

Live Stock Judging for Beginners. (Circular 29, pp. 128, figs. 99.)

This circular outlines the points of the score card and gives detailed directions for the judging of different types of horses, beef and dairy cattle, hogs, and sheep. Notes on live stock improvement by pure-bred sires, a tabulation of breeds, and the principal publications of the stations and of this department on live stock are appended.

KANSAS STATION, Manhattan, E. H. Webster, Director.

Milling Tests of Wheat and Baking Tests of Flour. By J. T. Willard and C. O. Swanson. (Bulletin 177, pp. 29–154, figs. 25.)

This bulletin summarizes the processes of cleaning wheat used by some Kansas mills and reports in detail the results of analyses of Kansas wheats grown in 1906 and 1907 and of milling and baking tests of the same with a view to trace, if possible, connections between the commercial composition of wheats and flours and their milling and baking qualities. Experiments to study milling and baking qualities of wheat as affected by germination, moisture, and heat are also included.

KENTUCKY STATION, Lexington, M. A. Scovell, Director.

New Series of Notices of Adulteration or Misbranding Under Section 10 of the Kentucky Food and Drugs Act, Approved March 13, 1908. (Notices of Adulteration or Misbranding, Vol. I, Cases No. 5001–5117, pp. 47, pl. 1.)

This is the first of a series of notices of adulteration or misbranding under the Kentucky food and drugs act, and includes cases under milk, ice cream, drugs, bakeries, and meat shops.

MASSACHUSETTS STATION, Amherst, W. P. Brooks, Director.

Twenty-third Annual Report, 1910. (Annual Report, 1910, pt. 1, pp. 356, pls. 6, figs. 16.)

This contains the usual executive and departmental reports reviewing the year's work of the station, a report of the treasurer for the fiscal year ended June 30, 1910, and the following special articles: Studies in milk secretion; the determination of arsenic in insecticides; purification of insoluble fatty acids; the soluble carbohydrates in asparagus roots; seed work, 1910; an outbreak of rusts; sweet-pea troubles; a spinach disease new to Massachusetts; abnormalities of stump growths; peach and plum troubles; climatic adaptations of apple varieties; compilations of analyses; and composition of some Massachusetts soils.

Twenty-third Annual Report, 1910. (Annual Report, 1910, pt. 2, pp. 95, fig. 1.)

This contains a brief summary by the director of the principal results of the work of the station during the year, and the following special articles: Top-dressing permanent mowings; top-dressing pastures; alfalfa in Massachusetts; experiments relating to the prevention of the clogging of drain tile by roots; the clogging of drain tile by roots; the spraying of trees; shade-tree troubles; the chestnut disease (*Diaporthe parasitica*); crown gall; Fusarium disease of cucumbers and other plants; condition of fruit trees in general; a new type of spray nozzle; distillery and brewery by-products; the feeding value of apple pomace; and the effect of protein upon the production and composition of milk.

Meteorological Observations. By J. E. Ostrander and R. N. Hallowell. (Meteorological Bulletin 273, pp. 4.)

This is a summary for September, 1911.

MINNESOTA STATION, University Farm, St. Paul, A. F. Woods, Director.

The Cost of Minnesota Dairy Products. By T. P. Cooper. (Bulletin 124, pp. 87–188, figs. 12.)

This bulletin, prepared in cooperation with the Bureau of Statistics of this department, reports in detail the results of a study from 1904 to 1909, inclusive, to determine the cost of producing dairy products on Minnesota farms.

OKLAHOMA STATION, Stillwater, J. A. Wilson, Director.

Experiment Station Work, 1911. (Circular of Information 18, pp. 8.)

The lines of work of the different departments of the station are indicated.

PORTO RICO FEDERAL STATION, Mayaguez, D. W. May, Special Agent in Charge.

Bee Keeping In Porto Rico. By W. V. Tower. (Circular 13, pp. 3–32, fig. 1.)

This circular gives information on bee culture in the Tropics, discussing apparatus for the apiary, manipulation and behavior of bees, and handling of honey. A list of honey plants in Porto Rico and notes on insect pests and diseases of the bee are also included.

TEXAS STATION, College Station, B. Youngblood, Director.

Commercial Fertilizers. By G. S. Fraps. (Bulletin 140, pp. 4–21.)

The changes in the fertilizer law enacted in 1911 are pointed out and results of analyses of fertilizers for 1910–11 given.

VERMONT STATION, Burlington, J. L. Hills, Director.

The Management of Vermont Forests With Special Reference to White Pine. By A. F. Hawes. (Bulletin 156, pp. 99–139, pls. 8, figs. 5.)

This bulletin describes methods of thinning and final cutting of forests under Vermont conditions and of measuring the yield and growth of timber, and gives detailed information on the management of white-pine forests, including notes on insects and diseases and their control. Forest fires and grazing are also referred to.

Commercial Feeding Stuffs. Concerning Feeding. By J. L. Hills, C. H. Jones, R. M. Washburn, et al. Standards. Summer Soiling Suggestions. (Bulletin 158, pp. 175–212.)

This bulletin reports the results of analyses of 438 samples of feeding stuffs collected by the station, explains methods of calculating the feeding standards, gives a brief compilation of information on the growing of summer soiling crops, and a comparison of milk shrinkage under partial and total soiling. A therm table of different feeding stuffs is appended.

Plant Diseases. Twenty Years' Spraying for Potato Diseases. Potato Diseases and the Weather. By B. F. Lutman. (Bulletin 159, pp. 215–296, figs. 19.)

This bulletin mentions the different plant diseases that occurred in the State during the year with suggestions for their control, reports the results of potato spraying experiments during 1919, summarizes the results of 20 years' spraying for potato diseases, and correlates different potato diseases with the weather conditions for that time.

Commercial Fertilizers. Limes and Liming. By J. L. Hills, C. H. Jones, P. A. Benedict, and W. B. Derby. (Bulletin 160, pp. 299–440, pls. 2, fig. 1.)

This bulletin reports the results of analyses of 157 brands of fertilizers for the year, discusses the quantity and quality of plant food in the brands, comparative values of fertilizers of the current and preceding years, the buying of commercial fertilizers, and tabulates the results of fertilizer inspection for the last five years. A special article on lime and liming is included.

○

United States Department of Agriculture,

OFFICE OF EXPERIMENT STATIONS,

A. C. TRUE, Director.

LIST OF STATION PUBLICATIONS RECEIVED BY THE OFFICE OF EXPERIMENT STATIONS DURING NOVEMBER, 1911.

NOTE.—The station publications noted in this list are not distributed by the Department of Agriculture, but can usually be obtained, as far as the supply will permit, by applying to the stations issuing them.

ALABAMA COLLEGE STATION, Auburn, J. F. Duggar, Director.

Peach Growing in Alabama. By P. F. Williams and J. C. C. Price. (Bulletin 156, pp. 111–142, figs. 11.)

This bulletin points out the possibilities and gives information for growing peaches under Alabama conditions, including notes on the principal insects and diseases and their control. Varieties of peaches tested at the station are described, including dates of normal bloom and ripening. The maximum and minimum temperatures at the station from 1904 to 1911, inclusive, are also added.

ARIZONA STATION, Tucson, R. H. Forbes, Director.

Irrigation and Agricultural Practice in Arizona. By R. H. Forbes. (Bulletin 63, pp. 83, pls. 8, figs. 8.)

This is a reprint of Bulletin 235 of this office reviewing the present status of irrigation in Arizona. General information regarding opportunities for settlement on irrigated lands, the cost of land and water, and of establishing homes and regarding crops grown are included.

CALIFORNIA STATION, Berkeley, E. J. Wickson, Director.

Honey Plants of California. By M. C. Richter. (Bulletin 217, pp. 973–1037, figs. 14.)

This bulletin gives a list of honey-producing plants of California with a statement of the geographical distribution of each plant and its value for honey production, compiled from the literature on the subject and also from field work.

Commercial Fertilizers. By J. S. Burd. (Bulletin 221, pp. 35–97.)

Analyses and valuations of fertilizers inspected during the fiscal year ended June 30, 1911, are reported and discussed.

The Prevention of Hog Cholera. By C. M. Haring. (Circular 68, pp. 8.)

This circular gives brief suggestions for inoculating hogs for cholera and describes the plans of the station for preparing and distributing the serum.

The Extermination of Morning-glory. By F. T. Bioletti. (Circular 69, pp. 12, figs. 6.)

The results of tests to determine the effect of repeated cuttings on the starch content of the roots of morning-glory (*Convolvulus arvensis*) with a view to its extermination are reported.

Observations on the Status of Corn Growing in California. By M. E. Sherwin. (Circular 70, pp. 20, figs. 8.)

The results of an inquiry into the conditions of the corn-growing industry in California conducted in 1909 with a view to permanent improvement of the corn crop in the State are reported in this circular.

Grains Recommended for Trial. By G. W. Shaw. (Circular 71, pp. 16, figs. 17.)

Varieties of wheat, oats, and barley which have been tested by the station and are considered worthy of dissemination are described.

ILLINOIS STATION, Urbana, E. Davenport, Director.

Collecting and Testing Soil Samples. By C. G. Hopkins and J. H. Pettit. (Circular 150, pp. 4.)

Brief directions to farmers for testing the acidity of soils are given.

The Home Vegetable Garden. By J. W. Lloyd. (Circular 154, pp. 32, figs. 7.)

Information is given for the farm, village, and city lot gardener on the care and management of the garden and its products.

IOWA STATION, Ames, C. F. Curtiss, Director.

Trussing and Boning Chicken for Fancy Trade. By W. A. Lippincott. (Bulletin 125, pp. 18, figs. 18.)

Directions for preparing poultry for fancy market trade by trussing and boning are given, with numerous illustrations.

KENTUCKY STATION, Lexington, M. A. Scovell, Director.

Blowing Stumps with Dynamite. By G. Roberts. (Bulletin 154, pp. 19–30, figs. 4.)

The results of trials by the Kentucky station in the removal of stumps by the use of dynamite are reported and directions for doing the work given.

Wheat: Variety Tests, Cultural Directions, and Treatment of Diseases. By G. Roberts and E. J. Kinney. (Bulletin 155, pp. 35–60.)

The results of variety tests of wheat at the Kentucky station from 1905 to 1911, inclusive, excepting 1908, are reported, together with cultural directions and methods of treatment of the principal diseases.

LOUISIANA STATIONS, Baton Rouge, W. R. Dodson, Director.

Sugar Cane Seedlings. By H. P. Agee. (Bulletin 127, pp. 3–23, figs. 5.)

The results of efforts by the station to propagate new varieties of cane from seed are discussed.

Cane Sirup Making. By H. P. Agee. (Bulletin 129, pp. 36, pl. 1, figs. 15.)

Detailed directions for preparing cane sirup are given with a description of apparatus required. Notes on open-kettle sugar and molasses sorghum sirup and on methods of cultivating and fertilizing cane are appended.

Lespedeza or Japan Clover. By W. R. Dodson et al. (Bulletin 130, pp. 64, figs. 15.)

This bulletin contains a number of papers presented before the Louisiana Lespedeza Growers' Association discussing the important phases of the production and marketing of the Lespedeza hay and seed crop. Chemical analyses of the plants by the Louisiana station are also given.

Experiments with Oil Burning in Boiler Furnaces. By E. W. Kerr and H. A. Nadler. (Bulletin 131, pp. 61, figs. 9.)

The results of tests to secure information on boiler burning of oil and on burning oil and bagasse together are reported and discussed.

A Simple, Effective, and Inexpensive Method of Treating the Arsenical Dipping Solution Before Emptying Vat for Cleaning. By W. H. Dalrymple and A. P. Kerr. (Bulletin 132, pp. 8, pl. 1.)

This bulletin reports the results of tests with air-slaked lime and iron sulphate for rendering inert or harmless the arsenic in solution in dipping vats and gives brief directions for applying the treatment.

Massachusetts Station, Amherst, W. P. Brooks, Director.

Meteorological Observations. By J. E. Ostrander and H. W. Angier. (Meteorological Bulletin 274, pp. 4.)

This is a summary for October, 1911.

Missouri College Station, Columbia, F. B. Mumford, Director.

The Soils of Sullivan County. By R. C. Doneghue et al. (Bulletin 92, pp. 451–486, pl. 1.)

This is a report of a soil survey of the county conducted by the Missouri station and inspected by this department. The natural features, agriculture, and soil types of the region are described, including the results of mechanical analyses. The bulletin contains a soil map of the area.

The Soils of Audrain County. By R. C. Doneghue and B. W. Tillman. (Bulletin 93, pp. 491–514, pl. 1.)

This is a report of a soil survey, with map of the county, conducted by the Missouri station and inspected by this department. The natural features, agriculture, and soil types of the region are described, including the results of mechanical analyses.

Selection of Corn for Seed and for Show. By C. B. Hutchison. (Circular 50, pp. 123–134, figs. 7.)

Brief suggestions for selecting and shipping corn for seed and exhibition purposes are given, and the points of the score card of the Missouri Corn Growers' Association are outlined.

Montana Station, Bozeman, F. B. Linfield, Director.

The Use of Soap to Retard the Settling of Certain Arsenicals. By J. R. Parker. (Bulletin 86, pp. 37–45.)

The results of experiments to test the effect of laundry and whale-oil soap on the rate of settling, and distribution of arsenate of lead and arsenate of zinc in spray solutions are reported.

New Jersey Stations, New Brunswick, J. G. Lipman, Director.

Analyses and Valuations of Commercial Fertilizers. Analyses of Fertilizer Supplies, Home Mixtures, and Special Compounds. By C. S. Cathcart et al. (Bulletin 240, pp. 3–49.)

Analyses and valuations of commercial fertilizers and fertilizer supplies inspected by the station during 1911 are reported. New methods of testing the quality of the nitrogenous materials in mixed fertilizers are described.

New York State Station, Geneva, W. H. Jordan, Director.

Inspection of Feeding Stuffs. (Bulletin 340, pp. 197–295.)

The results of analyses of feeding stuffs collected during the fall and winter of 1910–11, and a list of feeding stuffs, not analyzed but licensed for sale prior to June 22, 1911, are given, together with names of manufacturers and brands. The results of examinations of a number of samples for sand are also reported.

New York Cornell Station, Ithaca, L. H. Bailey, Director.

Studies of Variation in Plants. By H. H. Love. (Bulletin 297, pp. 593–677, figs. 22.)

The results of investigations with peas, buckwheat, and corn to determine the effect of soil fertility on the variability of certain characters and on the correlation coefficients are reported. References to the literature on the subject are given.

North Dakota Station, Agricultural College, J. H. Worst, Director.

Special Bulletin Food Department. (Special Food Bulletin 37, pp. 421–436.)

The results of examinations by the station of a number of patent medicines, tincture of iodin, food products, and dairies are reported in this bulletin.

Ohio Station, Wooster, C. E. Thorne, Director.

Thirtieth Annual Report of the Ohio Station, 1910. (Bulletin 230, pp. V–XXVII, 335–367.)

This contains the usual administrative report by the director reviewing the year's work of the station, a financial statement, meteorological summary, press bulletins 315 to 322, inclusive, and an index.

Alfalfa in Ohio—A Field Study. By W. M. Cook. (Circular 113, pp. 56, figs. 26.)

The results of an extensive field study of methods of growing alfalfa in Ohio are reported in this circular.

The Chinch Bug. By H. A. Gossard. (Circular 115, pp. 14, figs. 7.)

This circular points out the damage done by the chinch bug (*Blissus leucopterus*) in Ohio during the past year and describes its life history and habits, together with measures for its control.

The Rural Population of Ohio. Where is It Increasing and Decreasing? Why? By L. H. Goddard. (Circular 116, pp. 15–21, figs. 4.)

This circular gives a compilation of data based on the United States Census report, showing the rates of increase and decrease in rural population of the different townships of Ohio for the last two decades with a view of studying the causes of these changes.

Oklahoma Station, Stillwater, J. A. Wilson, Director.

Some Types of Silos and Equipment. By W. A. Linklater. (Circular 15, pp. 14, figs. 16.)

Suggestions for constructing different types of circular silos, together with notes on silage machinery, are given.

Plans for Distributing Bermuda Grass. By O. O. Churchill. (Circular of Information 17, pp. 3, fig. 1.)

Suggestions for planting Bermuda grass in Oklahoma, together with an outline of the plans of the station for distributing it to farmers, are given.

PENNSYLVANIA STATION, State College, H. P. Armsby, Director.

The Maintenance Ration of Cattle. By H. P. Armsby. (Bulletin 111, pp. 3–20.)

This is an outline of the present state of knowledge on the subject based mainly upon investigations at the Pennsylvania Institute of Animal Nutrition since 1902.

PORTO RICO STATION, Mayaguez, D. W. May, Special Agent in Charge.

Relation of Calcareous Soils to Pineapple Chlorosis. By P. L. Gile. (Bulletin 11, pp. 45, pls. 2.)

Studies are reported of the chemical composition of chlorotic pineapple soils and of the ash of green and chlorotic plants grown on different soils. Experiments to test the effect of calcium carbonate, iron salts, and light on chlorosis are included.

RHODE ISLAND STATION, Kingston, H. J. Wheeler, Director.

A Biological Study of Eleven Pathogenic Organisms from Cholera-like Diseases in Poultry. By P. B. Hadley and Elizabeth E. Amison. (Bulletin 146, pp. 43–102.)

This bulletin reviews previous investigations on the subject by others and reports the results of studies at the Rhode Island station bearing on the cultural and biochemical features, pathogenicity, virulence, and resistance to disinfectants of 11 pathogenic microorganisms isolated from cholera-like diseases in poultry. References to literature on the subject are added.

SOUTH CAROLINA STATION, Clemson College, J. N. Harper, Director.

Analyses of Commercial Fertilizers. By R. N. Brackett. (Bulletin 160, pp. 3–64.)

The results of analyses of commercial fertilizers collected by the station and sent in by farmers are reported with explanations of terms. The yearly averages of analyses for the last decade are also included.

TEXAS STATION, College Station, B. Youngblood, Director.

Practical Information for Beginners in Bee Keeping. By W. Newell. (Bulletin 142, pp. 41, figs. 22.)

This bulletin describes the life history of the honey bee and its principal insect enemies and diseases, with methods of control, and gives information for equipping and managing the apiary.

VERMONT STATION, Burlington, J. L. Hills, Director.

The Damping Off of Coniferous Seedlings. By C. M. Gifford. (Bulletin 157, pp. 143–171, pls. 4, figs. 10.)

This bulletin reports the results of studies on the spore formation of, and method of infection by, the damping off fungus (Fusarium) of coniferous seedlings, together with the results of field experiments to test the value of formalin and of steam sterilization for its control. Studies of the effect of formalin on germination of the seedlings are also reported.

VIRGINIA STATION, Blacksburg, S. W. Fletcher, Director.

Milk Standards—A Study of the Bacterial Count and the Dairy Score Card in City Milk Inspection. By W. K. Brainerd and W. L. Mallory. (Bulletin 194, pp. 3–20, figs. 3.)

This bulletin discusses the use of the dairy score card in regulating the sanitary condition of city milk, and reports results of studies to determine the relation between the bacterial content of milk and its rating as measured by the score card, and the value of the bacterial count as a supplement to the score card in city milk inspection.

West Virginia Station, Morgantown, J. H. Stewart, Director.

Experiments in the Production of Sanitary Milk. By H. Atwood and N. J. Giddings. (Bulletin 134, pp. 83–105, figs. 4.)

This bulletin reports the results of experiments to determine the bacterial contamination of milk from coolers and the efficiency of steam for its prevention, of milk from the same and from different quarters of the udder and its relation to yield, and to test the practicability of reducing the bacterial content by sealing the teats with carbolated vaseline and by injecting with dioxygen and glycothymoline. A test of the bacterial content of colostrum from a heifer with first calf is also included.

Wisconsin Station, Madison, H. L. Russell, Director.

Poultry House Construction. By J. G. Halpin and C. A. Ocock. (Bulletin 215, pp. 3–32, figs. 23.)

The purpose of this bulletin is to describe some of the elementary principles of poultry house construction based on experiences at the Wisconsin station. The colony and the long-house systems are briefly described and bills of material for two different poultry houses added.

Distribution of Licensed Stallions in the Counties of Wisconsin During 1911. By A. S. Alexander. (Circular of Information 28, pp. 99.)

This circular gives a directory of owners of licensed stallions and jacks, by counties, in Wisconsin during 1911 and a list of recognized foreign and American stallion registers. Statistics on distribution in the State of pure-bred, grade, and mongrel or scrub stallions, together with notes on grading of horses, and copies of licensed certificates and sections of laws pertaining to horse breeding in Wisconsin are also added.

O

United States Department of Agriculture,

OFFICE OF EXPERIMENT STATIONS.

A. C. TRUE, Director.

LIST OF STATION PUBLICATIONS RECEIVED BY THE OFFICE OF EXPERIMENT STATIONS DURING DECEMBER, 1911.

NOTE.—The station publications noted in this list are not distributed by the Department of Agriculture, but can usually be obtained, as far as the supply will permit, by applying to the stations issuing them.

ARKANSAS STATION, Fayetteville, C. F. Adams, Director.

Suggestions on the Storage of Apples. By E. Walker. (Circular 13, pp. 4.)

Brief suggestions are given as to temperature and other requirements in the storage of apples in cellars under Arkansas conditions.

CALIFORNIA STATION, Berkeley, E. J. Wickson, Director.

California Plant Diseases. By R. E. Smith and Elizabeth H. Smith. (Bulletin 218, pp. 1039–1193, figs. 102.)

Plant diseases including effects of injurious atmospheric and soil conditions in California are described with directions for their control. Methods of preparing the more common fungicides are also described.

Report of Live Stock Conditions in Imperial County, California. By C. L. Roadhouse and F. M. Hayes. (Bulletin 219, pp. 1193–1229, figs. 20.)

The results of a study into the live stock conditions of Imperial County, Cal., are reported including descriptions of the prevailing diseases of cattle, horses, and swine, with brief directions for their control.

CONNECTICUT STORRS STATION, Storrs, L. A. Clinton, Director.

New England Trees in Winter. By A. F. Blakeslee and C. D. Jarvis. (Bulletin 69, pp. 305–576, pls. 110, figs. 8.)

This bulletin is designed especially for teachers in the public schools, and describes the common trees of New England, with illustrations and keys for their identification based upon winter characters.

FLORIDA STATION, Gainesville, P. H. Rolfs, Director.

Stem-end Rot of Citrus Fruits (*Phomopsis* sp.). By H. S. Fawcett. (Bulletin 107, pp. 23, figs. 9.)

This bulletin points out the extent of the damage from stem-end rot of citrus fruits in Florida, describes the life history of the fungus (*Phomopsis* sp.),

and reports the results of experiments to determine the condition under which infection takes place and to compare the nature of its injury with that of other fungi, together with methods for its control. Other fungus diseases of citrus fruits in Florida are also briefly described.

Hawaii Federal Station, Honolulu, E. V. Wilcox, Special Agent in Charge.

The Avocado in Hawaii. By J. E. Higgins, C. J. Hunn, and V. S. Holt. (Bulletin 25, pp. 48, pls. 7, figs. 13.)

This bulletin describes briefly the botany and history of the avocado and gives information based on the work of the Hawaii station for cultivating, fertilizing, and marketing the crop, with methods for controlling the more important insects and diseases. A compilation of analyses of and notes on methods of serving the fruit, together with description of varieties under test by this department and of Hawaiian varieties, are included.

Cultural Methods for Controlling the Cotton Bollworm. By C. K. McClelland and C. A. Sahr. (Press Bulletin 32, pp. 8, figs. 2.)

The life history of the cotton bollworm (*Gelechia gossypiella*) is briefly described, together with the results of cultural methods during 1911 for its control under Hawaiian conditions.

Iowa Station, Ames, C. F. Curtiss, Director.

Some Bacteriological Effects of Liming. By P. E. Brown. (Research Bulletin 2, pp. 49–107, figs. 9.)

This bulletin reports the results of experiments to determine the effect of ground limestone on the total number of bacteria, and the number and activity of certain groups including ammonifying, nitrifying, and dentrifying bacteria in the soil, and to correlate these with the crop yield.

Kansas Station, Manhattan, E. H. Webster, Director.

Effect of Common Mill Fumigants on the Baking Qualities of Wheat Flour. By G. A. Dean and C. O. Swanson. (Bulletin 178, pp. 155–207, figs. 13.)

The results of experiments to test the effect of hydrocyanic-acid gas and of carbon bisulphid as used in elevators and mills on the baking qualities of different grades of flour from hard and from soft winter wheats are reported.

Louisiana Stations, Baton Rouge, W. R. Dodson, Director.

Report of Analyses of Commercial Fertilizers and Paris Green. By J. E. Halligan. (Fertilizer Report, 1910–11, pp. 101.)

The results of inspection and analyses of commercial fertilizers and Paris green in the State for the year 1910–11 are reported.

Maryland Station, College Park, H. J. Patterson, Director.

Maryland Weeds and Other Harmful Plants. By J. B. S. Norton. (Bulletin 155, pp. 71, figs. 56.)

This is a compilation of information based largely on the work of the Maryland station, but including also information from various other sources. The bulletin discusses the nature of weeds and their habits of life, agricultural types of weeds and methods of control, and gives a key to the principal weeds of Maryland, together with lists of poisonous plants and of cultivated plants which may become injurious. The use of sprays and chemicals at the station in the eradication of weeds is discussed, and the importance of pure seed regulations is pointed out.

Rose Mildew. By J. B. S. Norton and T. H. White. (Bulletin 156, pp. 73–82, figs. 6.)

Rose mildew is briefly described, together with the results of experiments to test the effect of ventilation in greenhouses on its formation and spread, and of vaporized sulphur for its control.

Miscellaneous Greenhouse Experiments. By C. P. Close and T. H. White. (Bulletin 158, pp. 97–109.)

The results are reported of experiments to determine the effect of sawdust in cow manure for greenhouse plants, the relation of soil and fertilizers to deterioration of violets in Maryland, and to test old soil versus new soil for greenhouse purposes, north and south versus east and west greenhouses, and ordinary watering versus Skinner irrigation for roses.

MASSACHUSETTS STATION, Amherst, W. P. Brooks, Director.

Inspection of Commercial Feed Stuffs. By P. H. Smith, C. L. Perkins, and J. C. Reed. (Bulletin 139, pp. 3–32.)

The results of analyses of commercial feeding stuffs collected during the winter and spring are tabulated and discussed. A list of the wholesale cost of feeding stuffs from January to August, 1911, inclusive, is also given.

Lime and Sulphur Solutions. By G. E. Stone. (Circular 31, pp. 4.)

A brief compilation of information for preparing the lime-sulphur spray mixture is given, with a table of dilutions recommended by the New York State Experiment Station.

MICHIGAN STATION, East Lansing, R. S. Shaw, Director.

Fertilizer Analyses. By A. J. Patten, O. B. Winter, and C. G. Clippert. (Bulletin 265, pp. 3–43.)

Explanations regarding the State fertilizer law and fertilizer valuations are given with tables of guaranteed and actual analyses of fertilizers for 1911.

Poultry House Construction and Yarding. By H. L. Kempster. (Bulletin 266, pp. 47–73, figs. 18.)

General principles of poultry house construction are outlined for the information of farmers.

How Contact Insecticides Kill. By G. D. Shafer. (Technical Bulletin 11, pp. 3–65, pls. 2, figs. 7.)

The results of detailed technical experiments to determine in what manner different gases and insecticides affect the activity and respiration of insects are reported, including tests of the effectiveness of lime-sulphur wash in killing scale insects.

MISSOURI COLLEGE STATION, Columbia, F. B. Mumford, Director.

Digestion Trial with Two Jersey Cows on Full Ration and on Maintenance. By C. H. Eckles. (Research Bulletin 4, pp. 5–22, pl. 1.)

The results are reported of digestion experiments to determine the difference in the digestion coefficients for dairy cows on full and on maintenance rations.

Maintenance Trials with Five Jersey Cows. By C. H. Eckles. (Research Bulletin 5, pp. 25–48, figs. 3.)

The results of feeding experiments with five dairy cows to determine the maintenance requirements are given and compared with the standards by Armsby and Haecker.

NEVADA STATION, Reno, J. E. Stubbs, Director.

Concerning the Relation of Food to Reproductive Activity and Longevity in Certain Hymenopterous Parasites. By S. B. Doten. (Bulletin 78, pp. 3–30, pls. 10.)

An account is presented of a method of feeding and confining small parasitic Hymenoptera used in a study of copulation and oviposition in these species. Photographs showing phases of oviposition and feeding in several species of these insects are included.

NEW HAMPSHIRE STATION, Durham, J. C. Kendall, Director.

The Feeding Stuffs Inspection for 1911. By B. E. Curry and T. O. Smith. (Bulletin 154, pp. 3–8.)

This contains the text of the State feeding stuffs law as amended in the spring of 1911 and the results of inspection and analyses of feeding stuffs in the State during 1911. A table stating the average composition of common cattle foods is also given.

NEW YORK CORNELL STATION, Ithaca, L. H. Bailey, Director.

The Cell Content of Milk. By H. E. Ross. (Bulletin 303, pp. 775–793, fig. 1.)

This bulletin reports the results of determinations of the cell content of milk as influenced by heating the milk, individual cows, fore milk, after milk, and strippings, manipulation of the udder, fat content, yield of milk, and evening and morning milk. Counts of the cell content in colostrum, and tests of methods of counting the cells are included.

Substitutes for Skimmed Milk in Raising Calves. By E. S. Savage and G. W. Tailby, jr. (Bulletin 304, pp. 3–32, figs. 16.)

This bulletin reviews the work of other stations on the subject and reports the results of experiments at the New York Cornell station during 1908–9 to test the feeding value of commercial foods as substitutes for skim milk for calves. The results of the previous season's work, contained in Bulletin 269, are also reported.

The Cause of "Apoplexy" in Winter-fed Lambs. By H. H. Wing. (Bulletin 305, pp. 35–47, figs. 2.)

This is a report on a continuation of feeding experiments with lambs during the winter of 1910–11 to study further the causes of so-called apoplexy in lambs, the cost of gain, and the health of the lambs on narrow and wide rations and on rations with and without succulent feed.

NEW YORK STATE STATION, Geneva, W. H. Jordan, Director.

Report of Analyses of Samples of Commercial Fertilizers Collected by the Commissioner of Agriculture during 1911. (Bulletin 341, pp. 297–397.)

The results of analyses of samples of fertilizers collected during 1911 are reported with notes on valuations.

Pruning Fruit Trees. By U. P. Hedrick. (Circular 13, pp. 8.)

Brief directions are given for pruning fruit trees at different stages of growth and for the development of different characteristics.

Small Fruits: Management and Varieties. (Circular 14, pp. 8.)

Brief cultural directions for the growing of small fruits are given with a list of "some of the newer varieties which appear to be worthy of more extended trial."

The Peach in New York. (Circular 15, pp. 8.)

Brief suggestions for growing peaches are made and a list of promising varieties for New York conditions is given.

Pruning and Training the Grape. By F. E. Gladwin. (Circular 16, pp. 8, pls. 4.)

Different systems of pruning and training the grape are briefly described.

Grafting and Propagating Plants. By W. H. Alderman. (Circular 17, pp. 8, pls. 4.)

Brief suggestions are given for cleft, whip, and bridge grafting, budding, cuttage, and layering.

Twenty-ninth Annual Report, 1910. (Annual Report, 1910, pp. VII+607, pls. 51, figs. 19.)

This contains a financial statement, report of the director reviewing the year's work of the station, and reports of the different departments on the following subjects: The individual animal as the unit in profitable dairying; the constancy of certain physiological characters in the classification of bacteria; the modern milk pail; potato spraying experiments in 1909; medullary spots—a contribution to the life history of some cambium miners; notes on New York plant diseases; chemical investigation of best conditions for making the lime-sulphur wash; the fermentation of citric acid in milk; the acidity of gluten feed; experiments with home-made concentrated lime-sulphur mixtures; the apple and pear membracids; a preliminary report on grape insects; potato fertilizers—method of application and form of nitrogen; pruning fruit trees; small fruits—management and varieties; and the peach in New York. A list of periodicals received by the station and meteorological records for 1910 are appended.

North Carolina College Station, West Raleigh, C. B. Williams, Director.

A Serious Lettuce Disease (Sclerotiniose) and a Method of Control. By F. L. Stevens and J. G. Hall. (Technical Bulletin 8, pp. 87–145, figs. 31.)

Part 1 of this bulletin describes sclerotiniose of lettuce and the life history of its causal fungus (*Sclerotinia libertiana*) and reports the results of detailed technical studies on the temperature relations, longevity of mycelium, and germination of the fungus, and the effect of various nutrients, acidity, and toxicity of fungicides on its growth, together with the results of experiments to test the efficiency of soil disinfection by chemicals and by heat for its control. Part 2 gives the results of tests in the eradication of the disease by removal of infected plants. A bibliography of the literature on the subject is added.

North Dakota Station, Agricultural College, J. H. Worst, Director.

Swamp Fever in Horses. By L. Van Es, E. D. Harris, and A. F. Schalk. (Bulletin 94, pp. 257–353, pls. 13, figs. 9.)

This bulletin reviews the work of other investigators on the subject and reports the results of studies at the North Dakota station to determine the infectiousness, causes, and symptoms of swamp fever in horses. A bibliography of the literature on the subject is added.

Special Bulletin Food Department. (Special Food Bulletin 36, pp. 397–420.)

Notes on the sale of lard and snuff in North Dakota and on the use of benzoate of soda, with results of examinations of patent medicines, food products, spirits of peppermint, ice cream, and inspection of restaurants, are given. The results of experiments to determine the effect of tempering on the milling and baking quality of durum wheat and a compilation of data on the relative milling value of winter and spring wheats are included.

Special Bulletin Food Department. (Special Food Bulletin 38, pp. 437–452.)

This bulletin contains an explanation regarding the registration fees under the beverage law of North Dakota, and compilation of data from the station's records on the moisture content of wheat, the results of milling and baking tests of speltz, and examinations of food products, confectionery stores, patent medicines, and mineral waters.

OHIO STATION, Wooster, C. E. Thorne, Director.

Plans and Summary Tables of the Experiments at the Central Farm, Wooster, on the Maintenance of Soil Fertility, Arranged for Reference in the Field. (Circular 114, pp. 21, fig. 1.)

This is a progress report giving the results of rotation and fertilizer experiments for 1910.

Varieties of Corn in Ohio. By G. T. Abbott. (Circular 117, pp. 23–67, figs. 35.)

This circular is based on the results of a field study into all sections of the State and describes varieties of corn in use, with notes on the localities in which each is grown.

TENNESSEE STATION, Knoxville, H. A. Morgan, Director.

Fertility Experiments in a Rotation of Cowpeas and Wheat. Part I, The Utilization of Various Phosphates. By C. A. Mooers. (Bulletin 90, pp. 57–90.)

The results are reported of experimeuts to test the action of different phosphatic fertilizers, with and without lime, on different soils of Tennessee.

Relation of Temperature and Rainfall to Crop Systems and Production. By J. F. Voorhees. (Bulletin 91, pp. 3–23, figs. 16.)

Data are presented and discussed with reference to the relation of temperature and rainfall to crop production in Tennessee. Particular attention is given to the double-cropping system for southern conditions. Systems of crop rotation for Tennessee conditions are appended.

Experiments with Fertilizers and Field Crops on Important Soil Types of Middle Tennessee. By C. A. Mooers. (Bulletin 92, pp. 27–95.)

The results of two years' experimental work to determine the fertilizer requirements of the various soil types in middle Tennessee and the crops and fertilizers adapted to them are reported in this bulletin.

Tobacco Insects of Tennessee. Tobacco Culture in Montgomery County. By A. C. Morgan and L. R. Neel. (Bulletin 93, pp. 101–116, figs. 8.)

Part 1 of this bulletin reports the results of studies in cooperation with this department on the life history and injuries of the tobacco flea beetle (*Epitrix parvula*) and the southern tobacco worm (*Phlegethontius sexta*) and describes methods for their control. Part 2 describes methods of growing tobacco in Montgomery County, Tenn., in a typical dark-tobacco district.

The Cattle Tick as Affected by Climate. By E. C. Cotton and J. F. Voorhees. (Bulletin 94, pp. 119–164, figs. 42.)

Part 1 of this bulletin reports the results of studies on the life history of the Texas-fever cattle tick, including tests of the effect of temperature on the adult tick and on the egg and seed-tick stages. Part 2 brings together the results of a study of the experimental data bearing on the relation of climate to the life history of the tick, with a view to its eradication.

Notes on Tomato Diseases, with Results of Selection for Resistance. By S. H. Essary. (Bulletin 95, pp. 3–12, figs. 7.)

This bulletin describes in nontechnical terms the symptoms of the so-called "blight" disease of tomatoes, together with recommendations for its control based on the results of investigations now in progress at the station, and announces the production of a blight-resistant strain of tomato.

TEXAS STATION, College Station, B. Youngblood, Director.

Commercial Feeding Stuffs. By J. W. Carson and G. S. Fraps. (Bulletin 141, pp. 3–97.)

Explanations regarding the requirements of the Texas feeding-stuff law, terms used, and relative digestibility of feeding stuffs are followed by the results of analyses of samples of feeding stuffs for sale in the State.

WASHINGTON STATION, Pullman, R. W. Thatcher, Director.

Practical Poultry Buildings. By H. L. Blanchard. (Bulletin 4, Special Series, rev., pp. 3–36, figs. 19.)

This is a new edition of this bulletin, the new matter added being a description of a second form of laying house in use at the station.

WISCONSIN STATION, Madison, H. L. Russell, Director.

Experiments on Spore Germination and Infection in Certain Species of Oomycetes. By I. E. Melhus. (Research Bulletin 15, pp. 25–91, pls. 7.)

This bulletin reviews the work of other investigators on the subject and reports the results of investigations to determine the relation of various conditions to spore germination and infection with *Cystopus candidus*, together with tests of the relative susceptibility of the cotyledons and leaves of radish (*Raphanus sativus*) and of different varieties and species of radish and other crucifers to the fungus. Germination tests of the conidia *of Plasmopara viticola*, *Peronospora effusa*, *P. parasitica*, and *Phytophthora infestans* are also included. A bibliography of the literature on the subject is added.

The Place of Economics in Agricultural Education and Research. By H. C. Taylor. (Research Bulletin 16, pp. 93–130, pls. 2, figs. 6.)

This bulletin discusses in detail the place of economics in agricultural education and research, the scope of agricultural economics, methods applicable to the study of economic problems in agriculture, and gives an appendix on chapter headings of a course in agricultural economics.

WYOMING STATION, Laramie, H. G. Knight, Director.

Feeding Experiments, 1910–11. A. D. Faville. (Bulletin 89, pp. 3–11, fig. 1.)

The results are reported of one season's feeding experiments with lambs to compare (1) the feeding value of corn, Scotch barley, and bald barley; (2) linseed-oil cake and alfalfa as sources of protein; and (3) narrow and wide rations with corn as basal feed.

Reclamation by Drainage. J. C. Fitterer. (Bulletin 90, pp. 3–22, pls. 5, figs. 5.)

The draining system in use on the Wyoming station stock farm, installed in cooperation with this department, and its action in reducing alkali in the land are described with a view of supplying information to farmers on methods of reclaiming alkali land.

○